447

The PHOTOFACT Servicer

SET 447 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JUNE 1959

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

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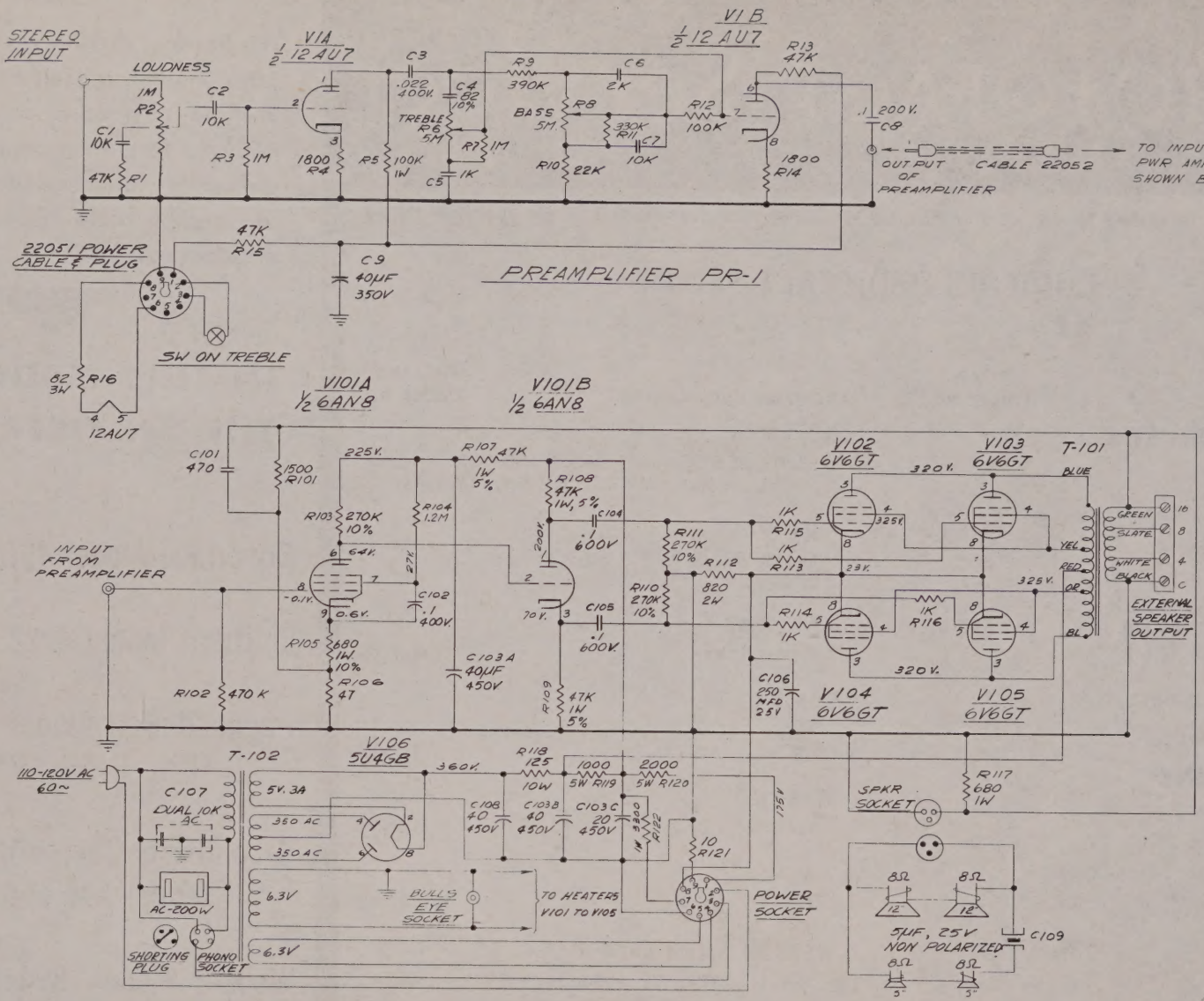
Emitron Model 4222

Packard-Bell Model SA-40 (Ch. PR-1, PA-40)

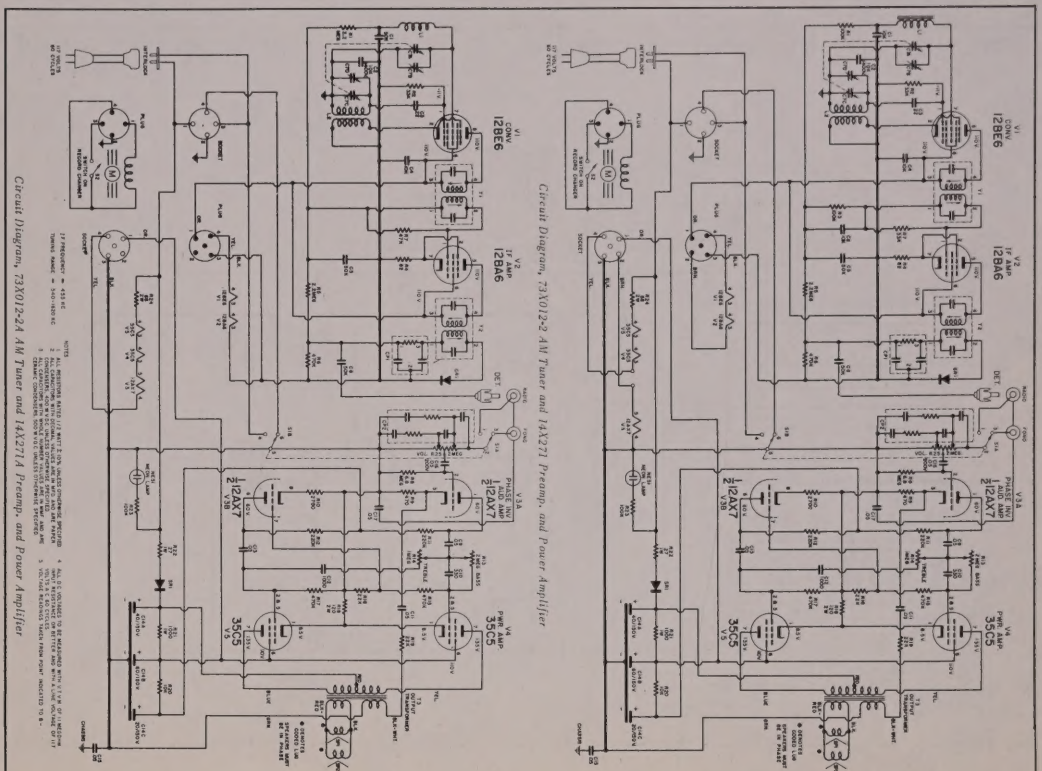
Stromberg-Carlson Model AM-666

Webcor Model 1894 (Ch. 14X271, A, 73XD12-2, A)



PACKARD-BELL MODEL SA-40(Ch. PR-1, PA-40)

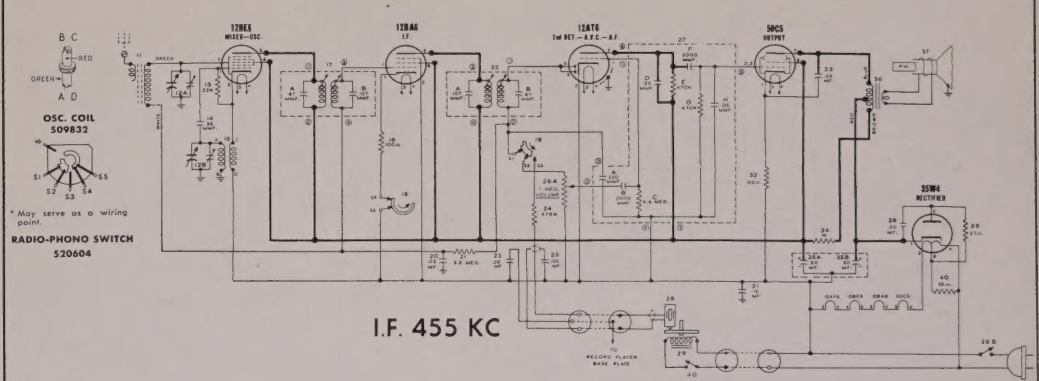
Schematic Diagram Courtesy of Packard-Bell Electronics Corp.



Circuit Diagram, 73X012-2A AM Tuner and 14X271A Preamp. and Power Amplifier

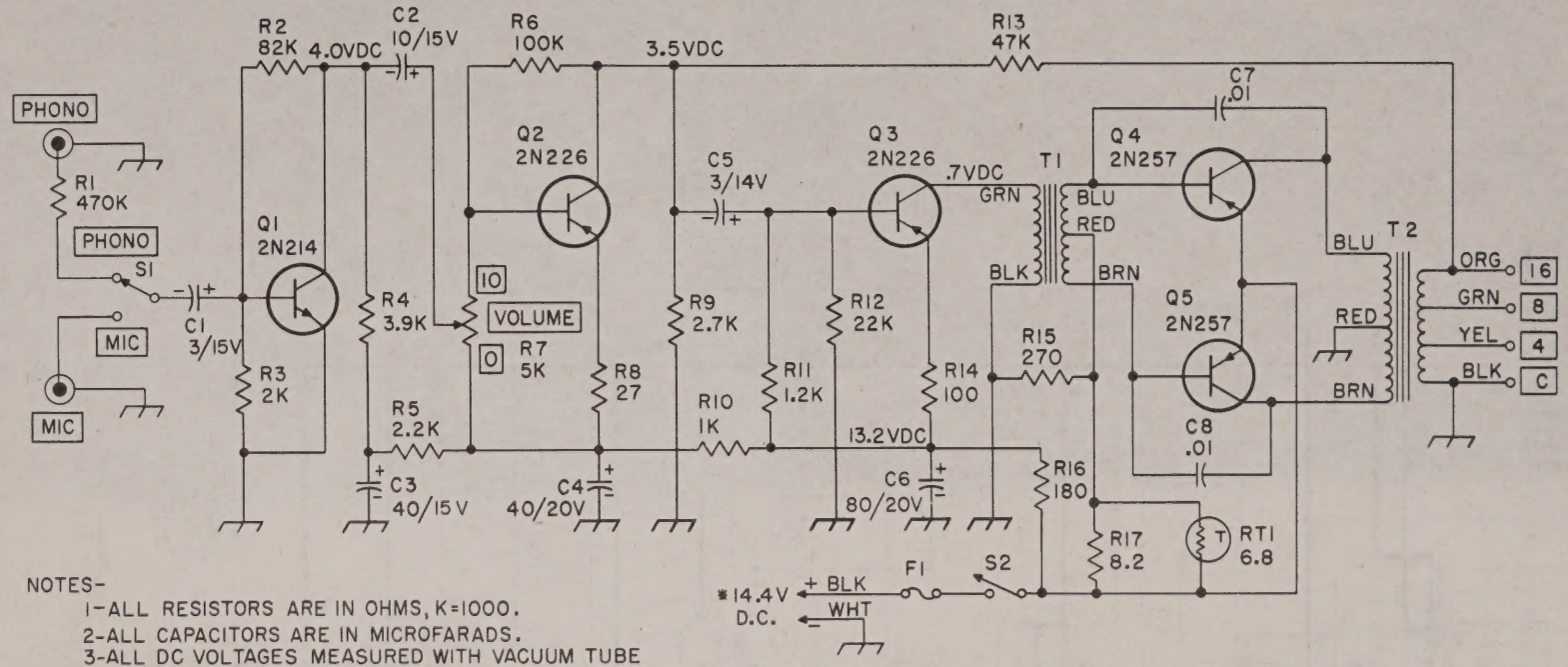
Circuit Diagram, 73X012-2 AM Tuner and 14X271 Preamp. and Power Amplifier

Schematic Diagram Courtesy of Webcor, Inc.



CORONADO MODEL 45RA37-43-9735A

Schematic Diagram Courtesy of Gamble-Skogmo, Inc.



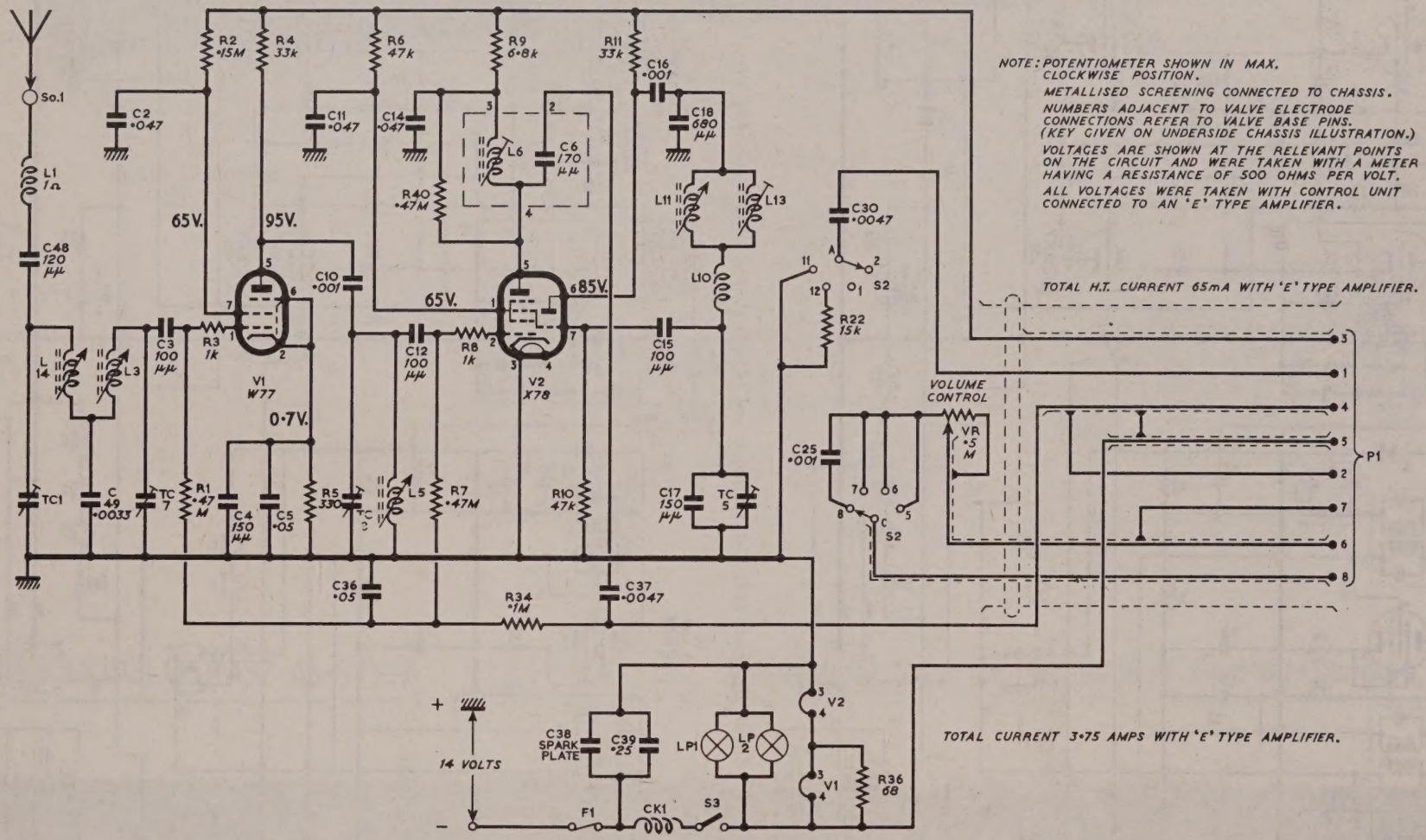
NOTES-

1-ALL RESISTORS ARE IN OHMS, K=1000.
2-ALL CAPACITORS ARE IN MICROFARADS.
3-ALL DC VOLTAGES MEASURED WITH VACUUM TUBE VOLT METER AT 25°C WITH COMMON LEAD TO CHASSIS. NO SIGNAL INPUT.
4- Q4 AND Q5 ARE MATCHED OUTPUT TRANSISTORS.

*OBSERVE POLARITY

STROMBERG-CARLSON MODEL AM-666

Schematic Diagram Courtesy of Stromberg-Carlson Co.



EMITRON MODEL 4222 (For Jaguar Autos)

Schematic Diagram Courtesy of S. Smith & Sons, Ltd.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

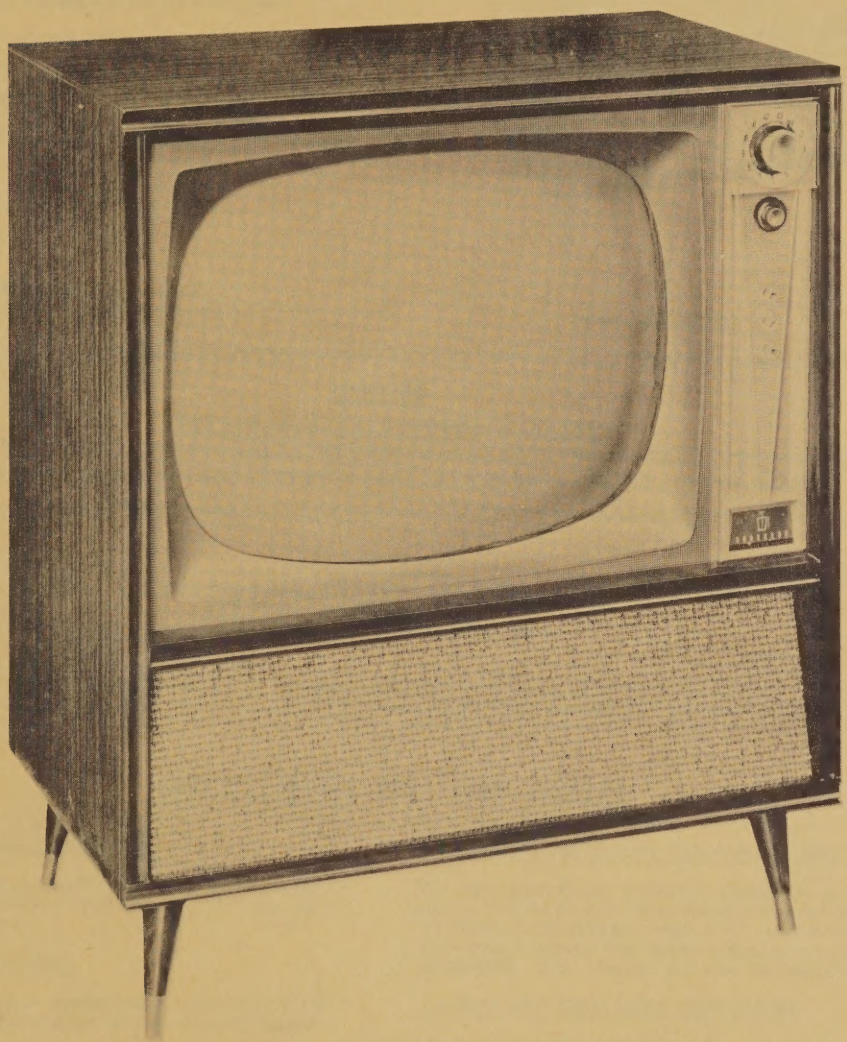
CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A



MODEL TV2-9505A

CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

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SET 447 FOLDER 1

PHOTOFACT* Folder

CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

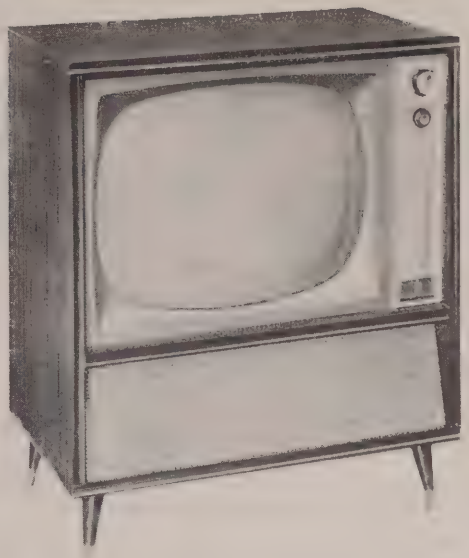
CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 7 push-on type knobs.
2. Remove 6 wood screws holding rear cover. Remove the rear cover.
3. Remove speaker leads.
4. Remove 2 screws holding antenna terminal board.
5. Remove 2 wood screws holding top chassis braces.
6. On models having side mounted controls, remove 1 hex screw holding bracket to cabinet and hex screw painted red near Vertical Output transformer holding control panel. Swing control panel back into cabinet to clear shafts.
7. Remove 4 bottom chassis bolts.
8. Remove chassis.

SEE PICTURE TUBE REMOVAL PAGE 16



MODEL TV2-9505A

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Coronado Models TV2-9500A, TV2-9501A, TV2-9505A, TV2-9510A, TV2-9511A, TV2-9515A, TV2-9516A
SUPPLIER	Gamble-Skogmo, Inc., 15 North 8th Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	VHF-Fourteen, UHF-Fifteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 160 Watts, 1.45 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENT

For touch-up adjustment of the VHF Oscillator, it is necessary to remove the chassis from the cabinet. (See disassembly instructions.)

SAFETY GLASS REMOVAL

Remove 5 wood screws holding metal trim strip at top of safety glass. Tilt top of glass out and lift up to remove.

RANGE CONTROL

Observe the picture and advance the Range control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

FOCUS

No provision is made to vary the focus on this receiver. (Some sets may be equipped with a Beam Alignment Magnet which may be adjusted for best focus.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSE DEVICE

A 7.5Ω fusible resistor (R64) is used for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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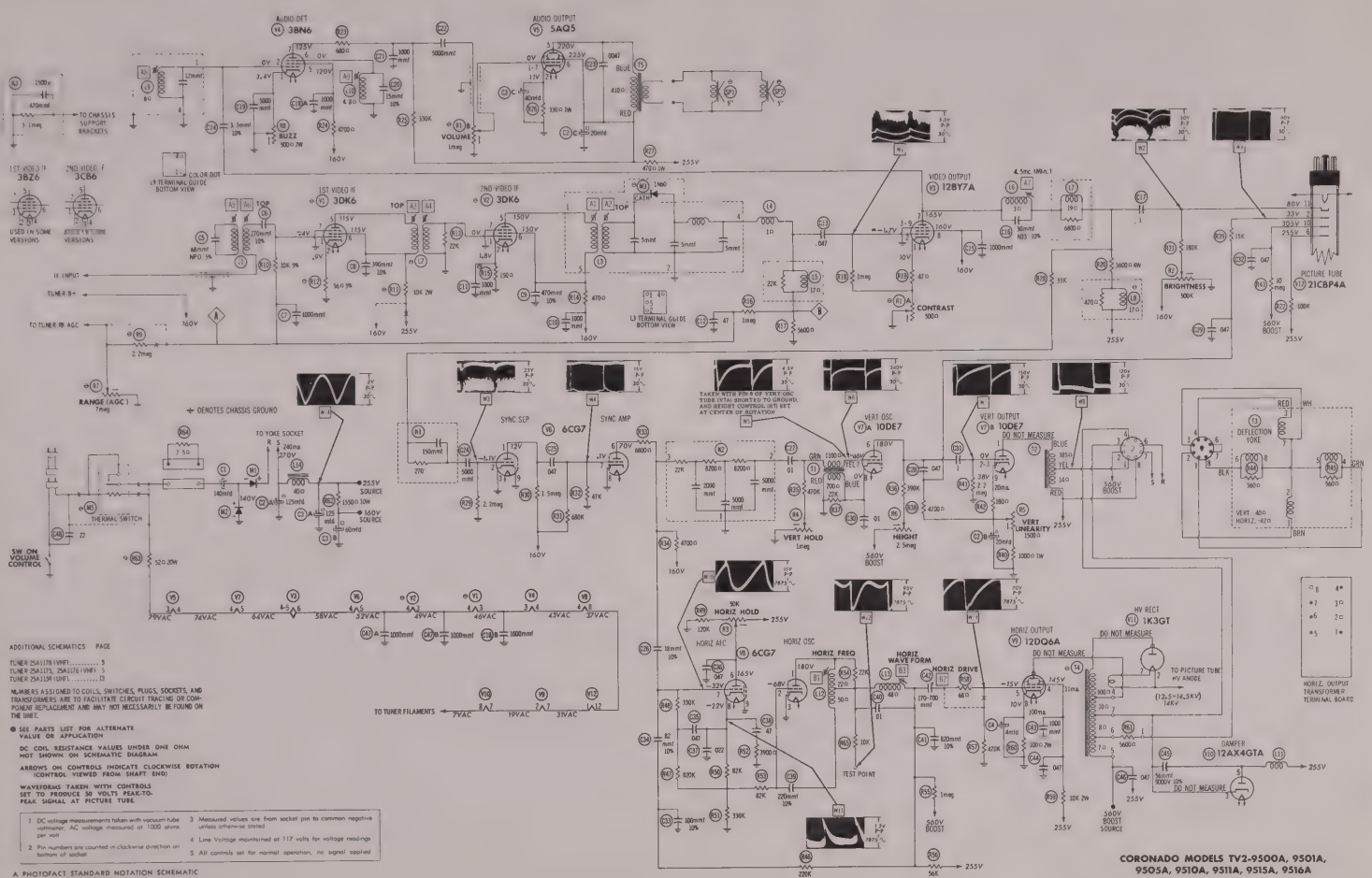
J109R

SET 447 FOLDER 1



ADDITIONAL SCHEMATICS PAGE

TUNER 25A1178 (VHF)..... 5
TUNER 25A1175, 25A1176 (VHF) 5
TUNER 25A1139 (UHF)..... D

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt.
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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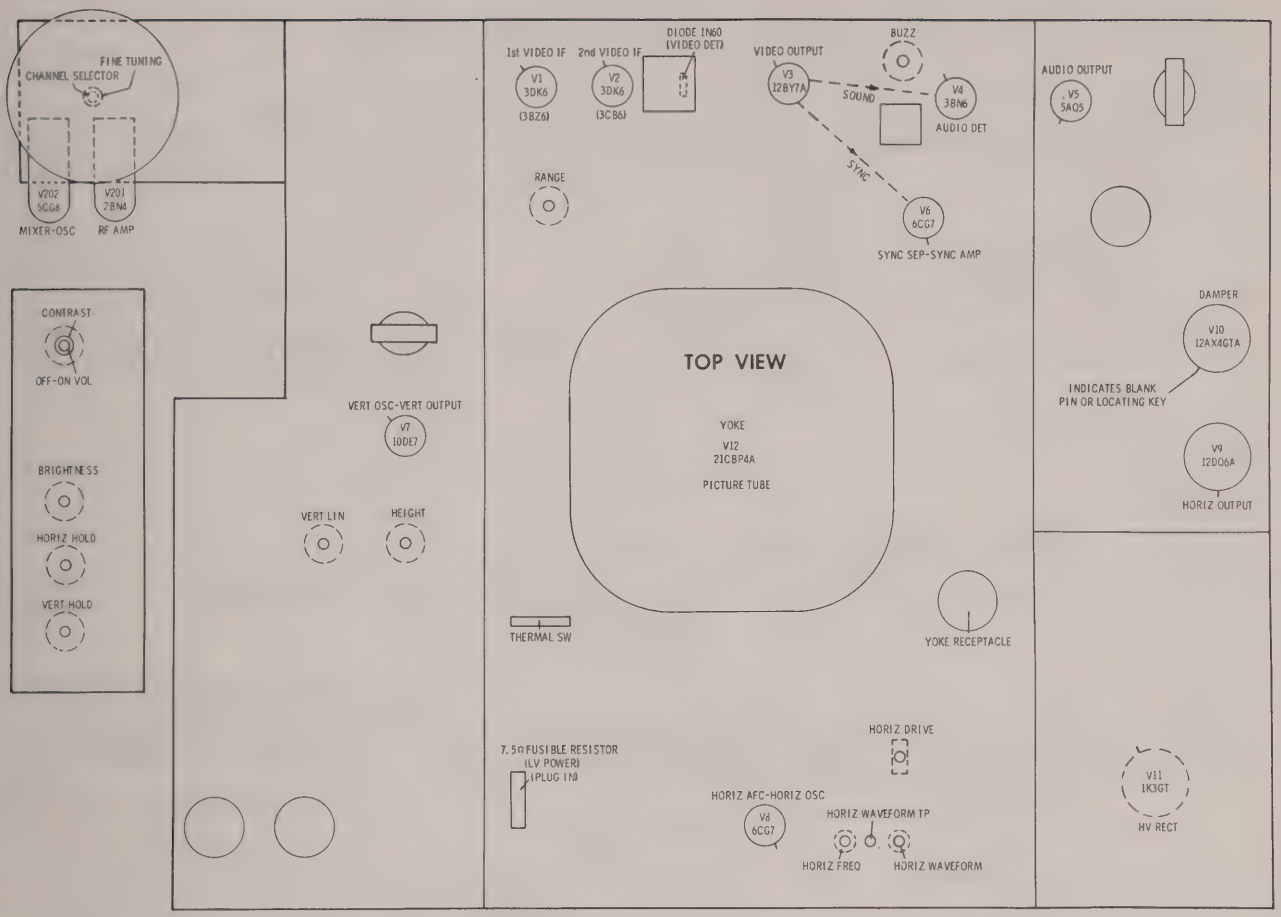
CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

FOLDER 1

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

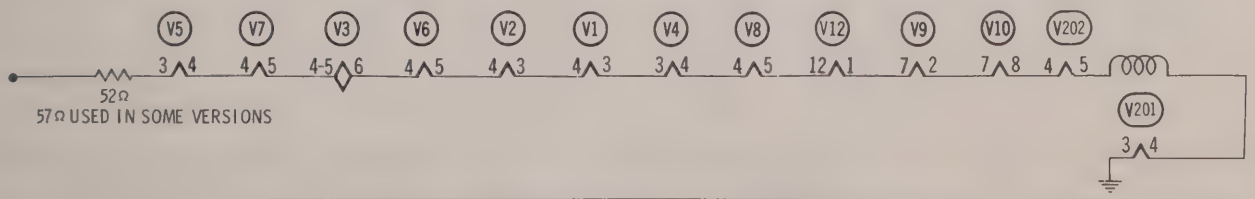
POWER SUPPLY FAILURE
No raster, no sound Fusible Resistor (7.5Ω), Rectifier (B+)

SWEEP FAILURE
No raster, has sound V8, V9, V10, V11, V12, Rectifier (B+)
No vertical deflection V7
Poor vert. linearity or foldover V7
Poor horiz. linearity or foldover V8, V9, V10
Narrow picture V8, V9, V10, Rectifier (B+)
Vert. off freq. V7
Horiz. off freq. V8

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, Diode (Video Det), V3
No pic, no sound, has snow V201, V202
No pic, has sound, has raster V3, V12
Has pic, no sound V4, V5

SYNC FAILURE
No vert. sync V6
No horiz. sync V6, V8
No vert. or horiz. sync V6

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 7 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01mfd	High side to pin 1 (grid) of 2nd Video IF. Low side to chassis. Adjust output for 4VP-P on scope.	44.0MC (10MC Swp)	42.4MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 47K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. A1 controls marker position and A2 controls gain and symmetry.
2.	"	High side to pin 1 (grid) of 1st Video IF. Low side to chassis. Adjust for 4VP-P on scope.	"	42.4MC 43.5MC 44.5MC 45.75MC	"	"	A3, A4	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. A3 controls marker position and A4 controls gain and symmetry.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC 42.4MC 43.5MC 44.5MC 45.75MC	"	"	A5, A6, & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. Adjust A5 to place 41.25MC marker in trap notch.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01mfd	High side to pin 2 (grid) of Video Output. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to pin 11 (cathode) of picture tube. Common to chassis. Use 0-10V AC scale.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV station and reduce the signal strength at the antenna terminals until a hiss is heard in the sound similar to super-regeneration.
Adjust A8, A9 and the Buzz control (R8) for maximum undistorted sound with MINIMUM buzz.
If the hiss disappears during adjusting, further reduce the signal strength.

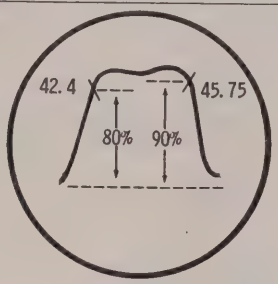


FIG. 1

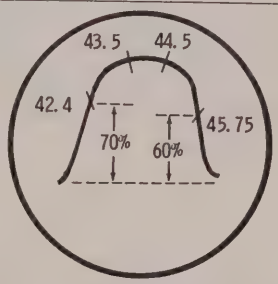


FIG. 2

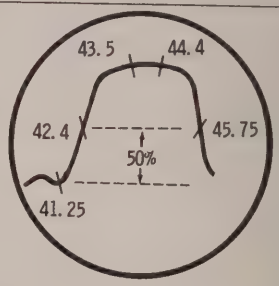


FIG. 3

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools:
B1, B3.... GENERAL CEMENT #8271, 8279
WALSCO #2524, 2527
B2 ..... 1/4" Nut Driver

Turn the Horizontal Hold fully clockwise. Tune in a station and adjust the Horizontal Frequency slug (B1) until the picture is just about to tear out of sync as can be seen at the top of the picture.

Turn the Contrast fully counterclockwise and the Brightness clockwise so that the picture appears washed out. Turn the Horizontal Drive trimmer (B2) clockwise until white vertical bars (drive lines) appear in the left center portion of the raster, then counterclockwise until the white bars just disappear.

Connect the vertical amplifier of a scope to point (C). Low side to chassis. Adjust the Horizontal Waveform slug (B3) until the round and sharp peaks of the waveform are equal in amplitude. See Fig. 4. Keep the picture in sync during this adjustment.

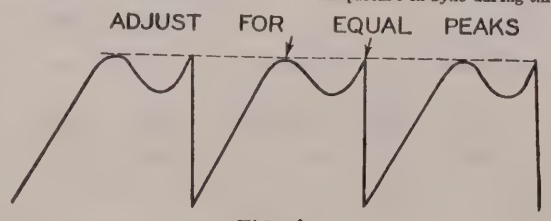
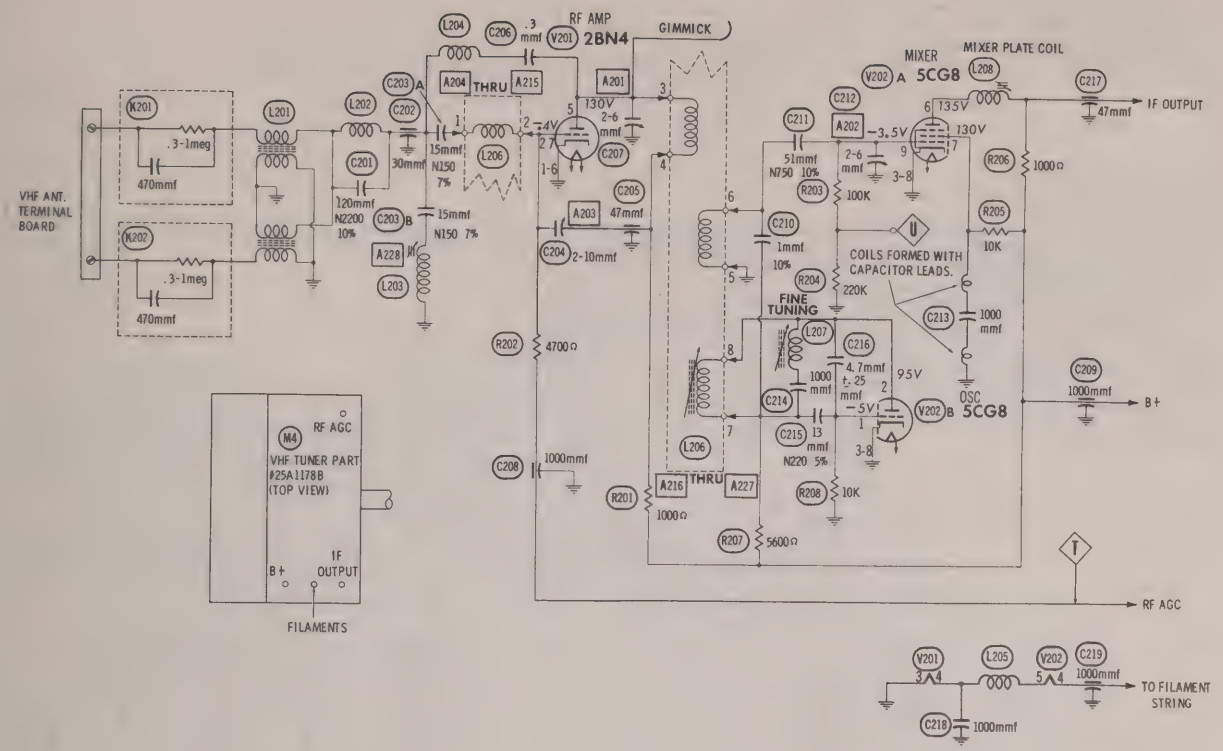


FIG. 4



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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VHF TUNER 25A1178

VHF TUNER 25A1175, 25A1176

SET 447 FOLDER 1

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools:

A201, A202, A203	GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290 WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A216 thru A227	GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987 WALSCO #2531
A228	GENERAL CEMENT #9296, 9297 WALSCO #2546, 2547

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope. Recheck A201.
2.	"	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

FIG.201

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

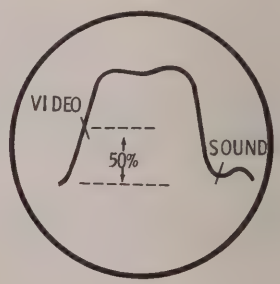


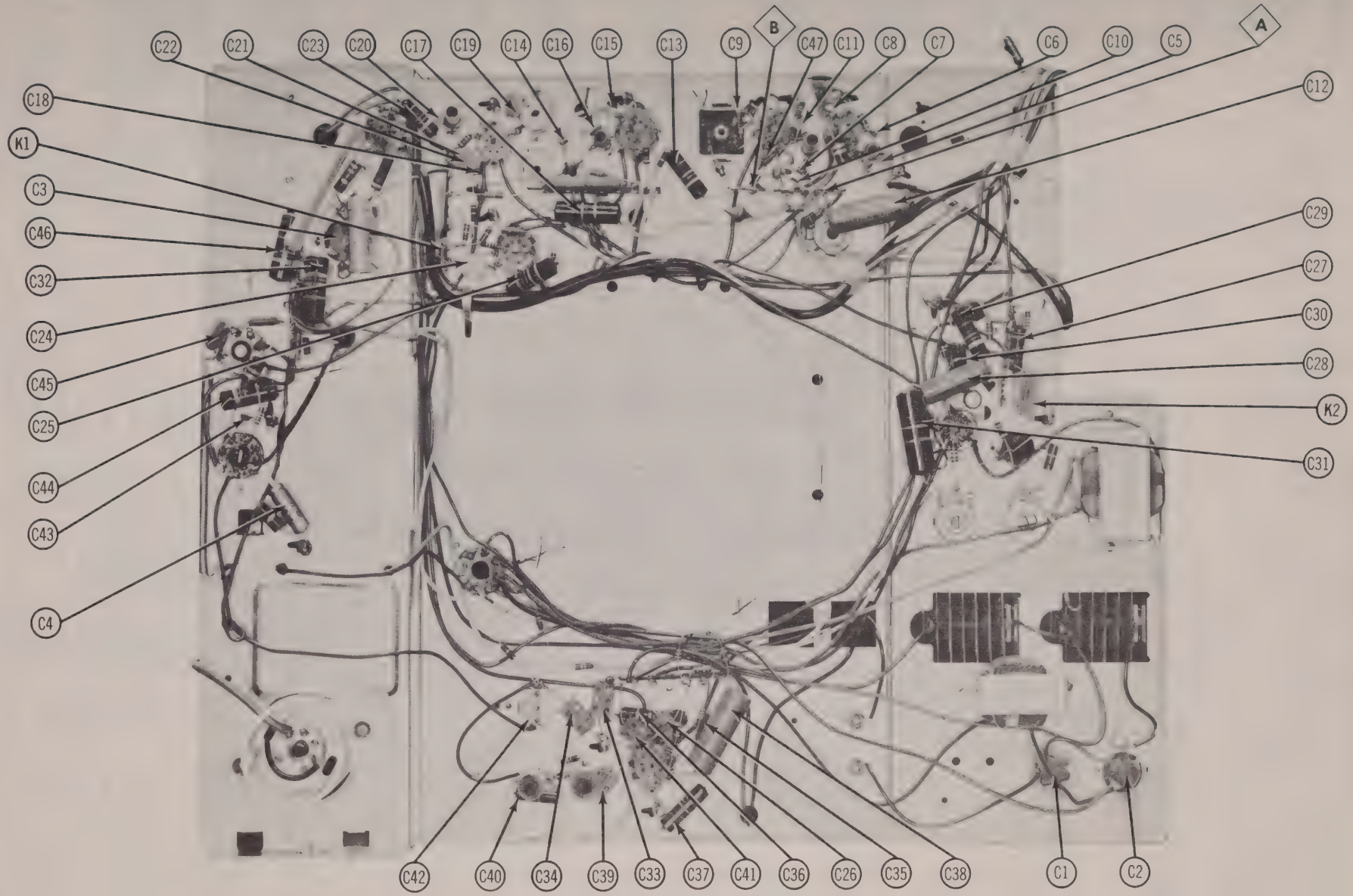
FIG.202

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

TRAP ADJUSTMENT

Some types of interference may be reduced by adjusting A228. Tune in the channel where interference occurs and adjust A228 for MINIMUM interference while observing the picture.



CHASSIS BOTTOM VIEW - CAPACITOR & ALIGNMENT IDENTIFICATION

CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	3DK6	3BZ6 *
V2	2nd Video IF Amp	3DK6	6CB6 *
V3	Video Output	1EBY7A	
V4	Audio Det	3BN6	
V5	Audio Output	3AQ5	
V6	Sync Sep -Sync Amp	6CG7	

ITEM No	USE	TYPE	NOTES
V7	Vert Osc -Vert Output	10DE7	
V8	Horiz AFC-Horiz. Osc.	6CG7	
V9	Horiz. Output	1BD6GA	
V10	Damper	1BA3AGTA	
V11	HV Rect.	1B3GT	

* Alternate

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	CORONADO PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V12	21CBP4A	21BTP4 ①	21CBP4-A ②	21CBP4, 21CBP4A ②	① "Aluminized" - Add Ion Trap. "Duramax" ③ "Silver Screen 88"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	CORONADO PART No	AEROVOX PART No	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SPRAGUE PART No	NOTES
C1	40	150	45X431	AF151-23	AA0261	FP217	TM8-24	TVL-1428	
C1A	25	300	45X431	AF1402-60	XC0733.2	FP218 FTC36			
B	20	300							
C	20	50							
C3A	25	300	45X430	AF83-99-83	C0733.7	FP230.27		TVL-3674.8	
B	50	300							
C	10	50							
C4	4	50	45X418	PR315V4	BB1H4-50	TT100X4	TD-4-50	TVA-1408	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING			REPLACEMENT DATA						NOTES
	CAP	VOLT	TOL	CORONADO PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	MALLORY PART No	SPRAGUE PART No	
C5	68		NPO 5%		NPO-DI-68	DTZ-68	CD5EC	CNO-468	5TCC-Q5S5 5%	
C6	270		10%		DI 270	MD-271	LoY37		5GA-Y27S 10%	
C7	1000		10%		BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C8	390		10%		DI 390	MD-391	LoY39		5GA-T39S 10%	
C9	470		10%		DI 470	MD-471		JL-347	5GA-T47S 10%	
C10	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C11	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C12	47	200			P388N-47		CUB21247	GEM-4047	2TM-P47	
C13	.047	200			P488N-047	DF-503	CUB21347	GEM-4147	2TM-S47	
C14	3.3		10%		NPO-SI 3.3	TCZ-5R3	CUV33C	CNO-533	5TCC-V33S 10%	
C15	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C16	30		N33 10%							
C17	.047	400			P488N-1	DF-104	CUB42P1	GEM-401	4TM-P1	
C18A	1000			80X3	BPD-2X001	DD2-102	BYD4D1M	B-2101 B-210	5HK-2D1	
B	1000							B-210		
C19	5000				BPD-005	DD-502	BYA40D5	B-350	5HK-D5	
C20	15				DI 15	DD-150	LOQ15	CNO-415	5TCC-Q15S 10%	
C21	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C22	5000				BPD-005	DD-502	BYA40D5	B-350	5HK-D5	
C23	.0047	600			P688N-0047	D6-472	CUB62D47	GEM-4247	2TM-D47	
C24	5000				BPD-005	DD-502	BYA10D5	B-350	5HK-D5	
C25	.047	400			P488N-047	DF-503	CUB42347	GEM-4147	4TM-S47	
C26	5.6	1600		RCM30B162K	1469-0002.8	TCZ-1S	22R5Q28	CNO-418	MS-418	
C27	01	400			P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C28	.047	400			P488N-047	DF-503	CUB42347	GEM-4147	4TM-S47	
C29	.047	200			P288N-047	DF-503	CUB22347	GEM-4147	2TM-S47	
C30	01	600			P688N-01	D6-103	CUB6S1	GEM-411	4TM-S1	
C31	.01	400			P488N-1	DF-104	CUB42P1	GEM-401	4TM-P1	
C32	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C33	5000		10%		1688-0001	TCZ-100	22R5J1	MCB225	MS-31	
C34	82		10%	RMC30B820K	1469-0000.82	TCZ-82	22R5Q82	CNO-482	MS-482	
C35	.047	200			P288N-047	DF-503	CUB22347	GEM-4147	2TM-S47	
C36	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C37	.022	200			P288N-022		CUB22S2	GEM-4122	2TM-S22	
C38	47	200			P288N-47		CUB22447	GEM-4047	2TM-P47	
C39	220		10%		1469-0002.2	TCZ-22S	22R5T22		MS-322	
C40	01	400			P488N-01	D6-103	CUB4S1	GEM-411	4TM-S1	
C41	1820		10%	RCM30B182K	1464-00082		UR5T82		MS-382	
C42	70-700			17AT71						
C43	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C44	.047	400			P488N-047	DF-503	CUB4647	GEM-4147	4TM-S47	
C45	56	5000	10%	47X755						
C46	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C47A	1000			80X3	BPD-2X001	DD2-102	BYD8D1M	B-2101 B-210	5HK-2D1	
B	1000							B-210		
C48	33	400			P488N-33		CUB4P33	GEM-4033	4TM-P33	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST ANCE	WATTS	CORONADO PART No	CENTRALAB PART No	CLAROSTAT PART No	IRC PART No	MALLORY PART No	
R1A	5000	½	T8X30	F1-2	RTV-646			Contrast
B	1meg	½		R3-51	Not Req.	†(QJ-1074	††(UB3T8SP	Volume
C	Switch			KN-1	Not Req.			Power Off-On
R2A	500K	½	46X423	B-59	A47-500K-S	QU-133	TA55L	Brightness
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	50K	½	46X424	B-31	A47-50K-Z	QU-133	TA54L	Horiz. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	1meg	½	46X425	B-69	A47-1meg-S	QU-137	TA8L	Vert Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	1500Ω	½	46X399	AB-5	A47-1500-S	QU-109	FTA152L	Vert Lin.
B	Shaft			AE-19	RN-3	TQ	Not Req.	
R6A	2.5meg	½	46X398	EK-83	A47-2.5meg-S	QU-239	FTA28L	Height
B	Shaft			Not Req.	RN-3	TQ	Not Req.	
R7	1meg	½	46X455					Range (AGC)
R8	500Ω	2.5W①	46X397		39-500		FL-500	Buss

† "Centralab" Equivalent: K-2 Kit with Base Elements & Shafts; BU-105, P6-102 (Panel), BU-137, BU-126(Rear), 78-1 (Switch)
†† "STA-LOC" Equivalent. FAT3L, OF125A, RU16L, 1SL67S, US-4L

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING		CORONADO PART No	NOTES
	OHMS	WATT		
R9	2.2meg		1B4338	Note 1
R10	10K 5%			
R11	10K	2W		Note 2
R13	560 5%			Note 3
R13	22K			
R14	470Ω			Note 4
R15	150Ω			
R16	1meg			
R17	5600Ω			
R18	1meg			
R19	47Ω			
R20	3600Ω	4W	43X331	
R21	180K			
R23	100K			
R23	560Ω			
R24	4700Ω			
R25	330K			
R26	330Ω	1W		
R27	470Ω	1W		
R28	33K			
R29	2.2meg			
R30	1.5meg			
R31	680K			
R32	47K			
R33	6800Ω			
R34	4700Ω			
R35	470K			
R36	390K			
R37	22K			

ITEM No	RATING		CORONADO PART No	NOTES
	OHMS	WATT		
R38	4700Ω			
R39	15K			
R40	1000Ω	1W		
R41	2.2meg			
R42	180Ω			
R43	10meg			
R44	100Ω			
R45	560Ω			
R46	220K			
R47	820K			
R48	330K			
R49	180K			
R50	82K			
R51	390K			
R52	3900Ω			
R53	82K			
R54	33K			
R55	1meg			
R56	56K			
R57	470K			
R58	68Ω			
R59	10K	2W		
R60	100Ω	2W		
R61	5600Ω			
R62	1550Ω	10W	43X307	
R63	15Ω	30W	43X302	Note 5
R64	7.5Ω		43X300	
R66	68K			

Note 1. Not used in some versions.
Note 2. Some versions may use 470Ω in this application.
Note 3. Some versions may use 470 5% in this application.
Note 4. Some versions may use 180Ω in this application.
Note 5. Some versions may use 8Ω 10W in this application.

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA					NOTES
		CORONADO PART No	Meissner PART No	Mard PART No	Miller PART No	Ram PART No	
L1A	1st Video IF	9A2636			6211 *		
B	41.25MC Trap						
L2	2nd Video IF	9A2444					
L3	3rd Video IF	9A2435					Includes 30 microhenries Resonant choke 30 Microhenries 290 Microhenries, wound on 22K resistor
L4	Resonant Choke	9A2275					
L5	Shunt Peaking Coil	36A22	19-3300 ▲	TV-199 ▲	6155 ▲		
L6	4.5MC Trap	9A2366	20-1004	TV-151	1469 ▲	SF-3	
L7	Series Peaking Coil	36A38	19-4400 ▲	TV-190 ▲	6132 ▲	VP-7 ▲	350 Microhenries, wound on 6800Ω resistor
L8	Shunt Peaking Coil		18-3300 ■	TV-199 ■	6155 ■		290 Microhenries, wound on 4700Ω resistor 220 Microhenries, wound on 4700Ω resistor ①
	Shunt Peaking Coil	36A38	18-4401 ■	TV-197 ■	6154 ■		
L9	Sound IF	9A2434	17-1088				
L10	Quadrature Coil	9A2367	20-1005	TV-121	1460		
L11	RF Choke	9A2260	19-1001	RC-562	4604		1.5 Microhenries

① Alternate part used in some versions
* Disregard secondary winding

▲ Parallel with 2.2K resistor. ■ Parallel with 6800Ω resistor. ▼ Disregard tap ◆ Parallel with 4700Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CORONADO PART No.	Meissner PART No.	Mard PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L12	72Ω		9A237I		TV-165	6211 *		HS-7	Horiz. Freq. tapped@50Ω
L13	46Ω		9A2372			6315		HS-5 *	Horiz. Waveform * Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~/~	CORONADO PART No.	Halloran PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L24	250A	40Ω	1 Hy.	52X95-9	C5037 ①	C-2991 ①		C-2326 ①	28C43 ①	C-97X

① Drill new mounting hole.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		CORONADO PART No.	Halloran PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert. Osc	54J29	H6702	A-3003	V405	VBC19	A-8125	25A03	A-97X
T2	Vert. Output	51X186-2	21W03 ① ③	A-2855	V3031 ② ③	VO28 ②	A-8113 ②	25S73 ② ③	A-118X ② ④
T3	Yoke-Horiz. (34MH) (90°)-Vert. (39MH)	52J403 ④	DF80 ③ ⑤	MDF-92 ③ ⑤ ⑦	V80F10/45 ③ ⑤		DY-49A ③ ⑤ ⑦	Y-16 ③ ⑤	Y-45 ④ NW21 ⑤ YC-1
	Rear Cover & Centering Device	2A435							CL-1
	Yoke Retainer	8X247							
	Yoke Clamp	30X61							
T4	Horiz. Output	53X363G	FB498 ③	RVO-157 ③ * 8	RT96	ETR198 ③ ⑤ * 8	EO-388 *	FLY-143 ③ * 8	D-131 *
	Alt. Horiz. Output	53X383							

① Connect as autoformer.
② Use 8 : 1 turns ratio.
③ Drill new mounting hole(s).
④ Includes resistors (R44, R45).
⑤ Use original rear cover and centering device.
⑥ Connect same as original.
⑦ Remove Horizontal Damping Network from yoke.
⑧ Trim 1½" from top of terminal board.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halloran Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	4	8	8		5	8	4	4
	7	2	2		2	3	8 & 7	3
	6	6	6		6	2	2	2
	5	1	1		1	1	5	1
Special Notes		②	②		②			①

② Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CORONADO PART No.	Halloran PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	6500Ω	3-4Ω	51X186	21110	A-3026	AU-803 ①	A-3877 ①	24S81 ①	S-8X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP	CORONADO PART No.	QUAM PART No.	
SP1	5"	PM	6-8Ω	12A550 ①	5A1S26.8 ①	① Connect in parallel and phase. ② Alternate.
SP2	5"	PM	6-8Ω	12A550 ②	5A1S26.8 ②	
	5"	PM		12A527 ②		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA	
K1	Sync Coupling	150mmf, 370K	76X19		
K2	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 22K, 820Ω, 820Ω	76X7	Aerovox Centralab Corsoil-Dubilier Sprague	PA-110 PC-100 1157MG SV-1/V-3
K3	Chassis Isolation	470mmf @ 1500V., .1-1meg	76X11	Centralab Sprague	RC-471 AC-1

RECTIFIERS

ITEM No.	RATING		REPLACEMENT DATA					
	CURRENT (Measured)	CORONADO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.240A	66X14 ①	1236AH ① HA504 ②	T300 ① TV500 ②	300 ① 40K ②	① Selenium Type. ② Silicon Type.
M2	.240A	66X14 ①	1235AH ① HA504 ②	T300 ① TV500 ②	300 ① 40K ②	

CRYSTAL DIODES

ITEM No.	ORIG TYPE	REPLACEMENT DATA			NOTES
		CORONADO PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60 *		1N60	1N60	Video Detector (Pigtail) * Some versions may use CK706 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	25A-1178B	VHF
	Tuner	25A-1175	VHF
	Tuner	25A-1176	VHF
	Tuner	25A-1159	UHF
M5	Thermal Switch	2A494-B	Not used in Models WO-5060A, B, 5061A, B, 5071A, B, 5160A, B
	Magnet	2A678	Beam Alignment, may be used to improve focus

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

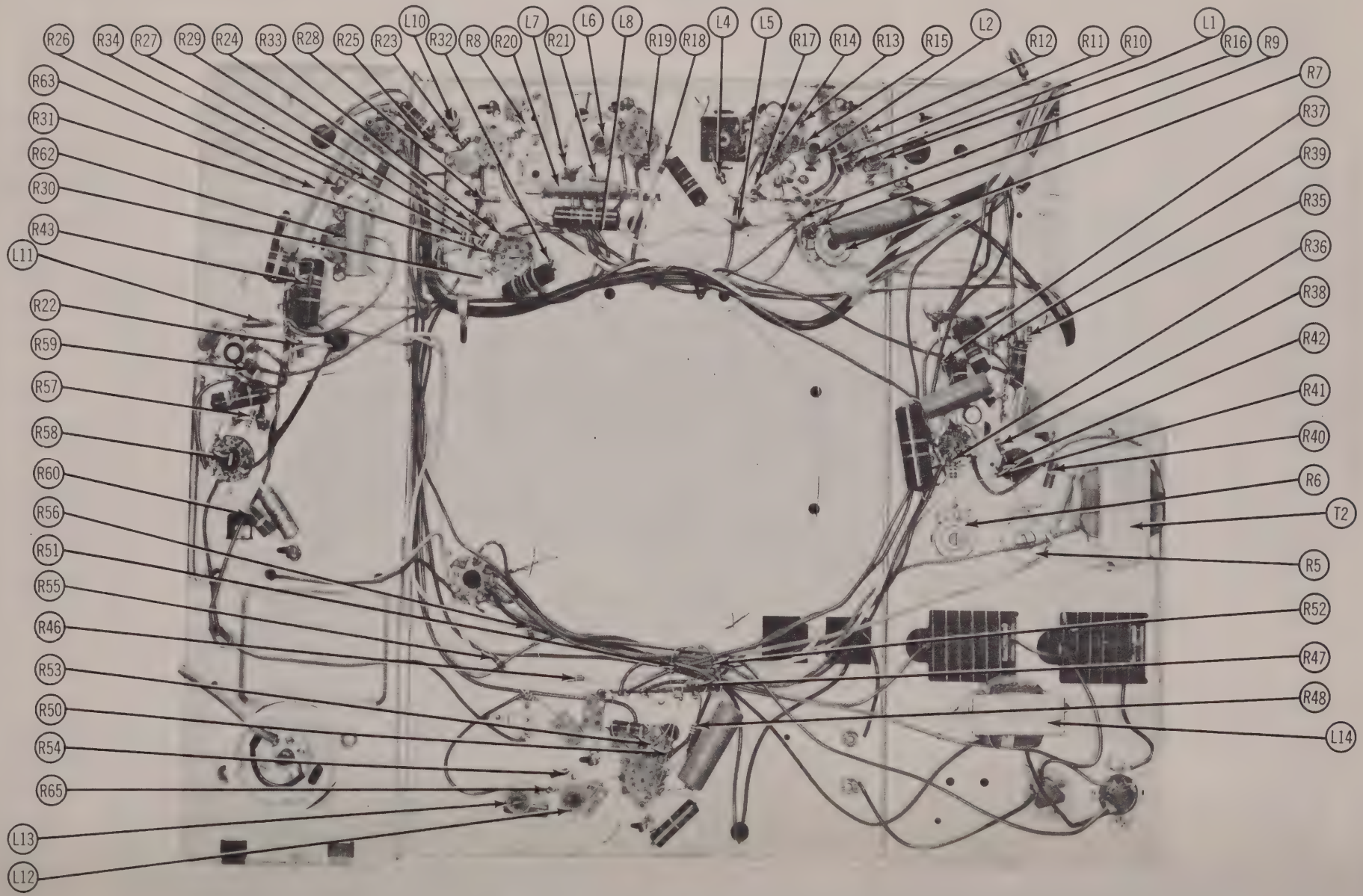
NAME	PART NO.	DESCRIPTION
Safety Glass	17X199-1	
Mask	S-28A802	Gold
Mask	S-28A809	Silver
Knob	10A954-1	Channel Selector
Knob	10A963-1	Fine Tuning
Knob	10A952-1	Off-On-Volume
Knob	10A932-2	Contrast, Brown
Knob	10A932-3	Contrast, White
Knob	10A934-1	Secondary Controls, Gold
Knob	10A934-2	Secondary Controls, Silver

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8736 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8174
300Ω Tuner Input Lead	Use BELDEN No. 8225 or 8275
300Ω Antenna Lead-in	Use BELDEN No. 8250 or 8255
Antenna Rotor Cable	Use BELDEN No. 8404 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8486 (Round) - 8 Conductor

CORONADO MODELS TV2-9500A, 9501A, 9505A, 9510A, 9511A, 9515A, 9516A

FOLDER 1



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUNER PARTS LIST AND DESCRIPTIONS

25A1178

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		N2200 10%	13L-031						
C202	30			13M420U300J-01						
C203A	15		N150 7%	13L8PG150N2						
B	15									
C204	2-10			31B-206-08		829-10				
C205	47			13M130U470J-01						
C206	.3			13D-111-42						
C207	2-6			31B-206-01		829-6				
C208	1000			13M420EA102Z-01	EF-1000	MFT-1000				
C209	1000			13M420EA102Z-01	EF-1000	MFT-1000				
C210	1.0		10%	13D-111-35	NPO-SI 1.0	TCZ-1.0		CNO-510	5TCCB-V1S 10% *	
C211	51		N750 10%		N750-DI 51	TCZ-51	C10Q51U		5TCU-Q51S 10% *	
C212	2-6			31B-206-01		829-6				
C213	1000			31J-024	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C214	1000			13L6X102Z	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C215	13		N220 5%	13L8R130J						
C216	4.7		±.25mmf	13L8R4R7C				CNO-547	5TCCB-V47S ±.25mmf*	
C217	47			13M420Q470J-01						
C218	1000			13L6X102Z	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C219	1000			13M420EA102Z-01	EF-1000	MFT-1000				

* Not normally in distributors stock. Available thru distributor on order to manufacturer.
NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PART No.	NOTES
	OHMS	WATT		
R201	1000Ω			
R202	4700Ω			
R203	100K			
R204	220K			

ITEM No.	RATING		PART No.	NOTES
	OHMS	WATT		
R205	10K			
R206	1000Ω			
R207	5600Ω			
R208	10K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg	13P-198-02	Centralab Sprague	RC-471 AC1-1
K202	Antenna Isolation	470mmf, .3-1meg	13P-198-02	Centralab Sprague	RC-471 AC1-1

NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

COILS (RF-IF)

ITEM No.	USE	PART No.	NOTES
L201	Ant. Trans.	31T-3397	†
L202	IF Trap Coil	34A-748	†
L203	IF Trap Coil	34A-762	
L204	RF Choke	34A-1005	
L205	Fil. Choke	31K-137-027	

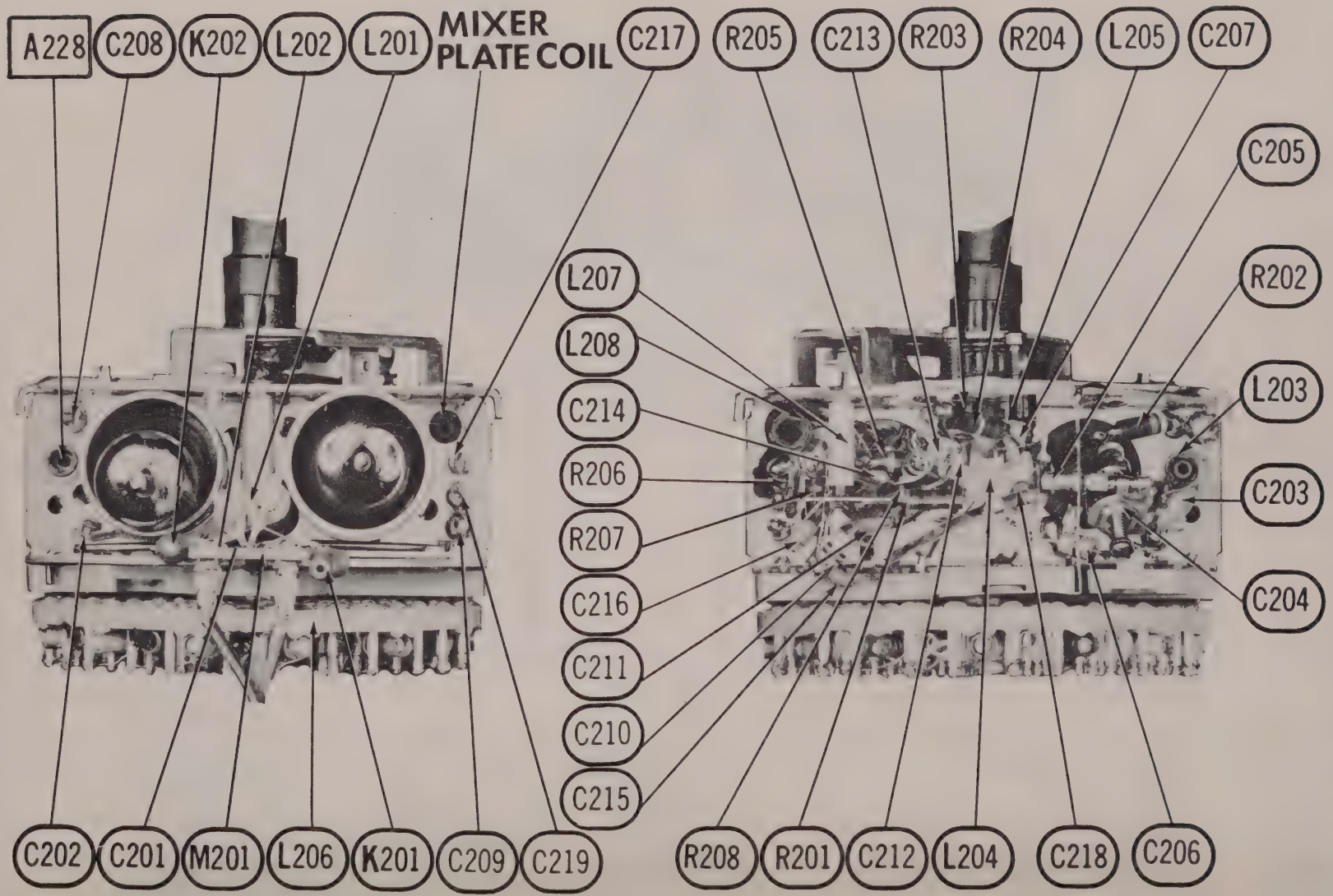
ITEM No.	USE	PART No.	NOTES
L206	Ant, RF, Mixer Grid & Osc. Coils	31T-3361-07	Includes Rotor Disc Assy.
L207	Fine Tuning Coil	34A-787-03	
L208	Mixer Plate Coil	31UA-580-017	

† Part of M201. NOTE: Part numbers listed above are "Standard Coil" Part Numbers.

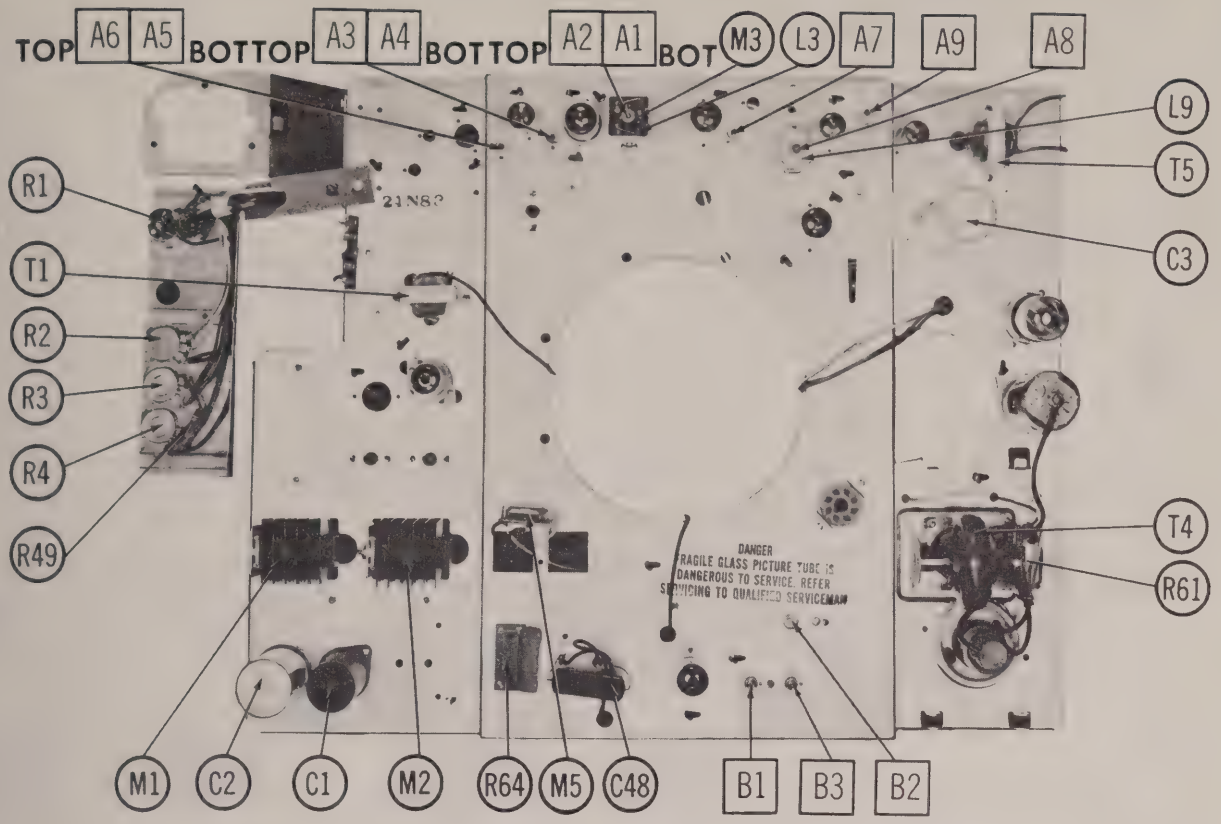
MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M201	Antenna Input Assy	31T-3398-02	Includes C201, L201, L202. K201 and K202
	Retaining Spring	23A-172	
	Locking Spring	23A-131	
	Contact Spring	23A-132-02	
	Detent Spring	23A-145	
	Oscillator Slug	9E-501-01	

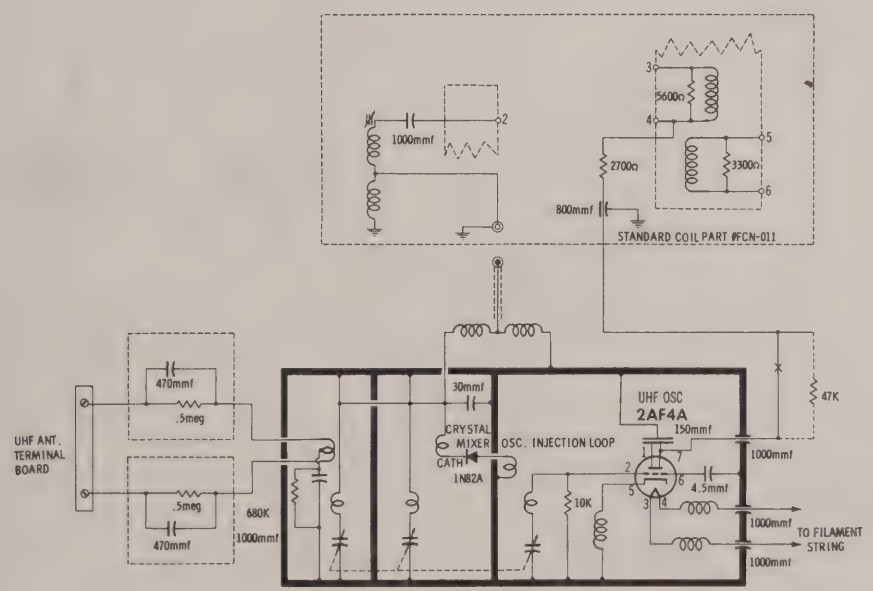
NOTE: Part numbers listed above are "Standard Coil" Part Numbers.



TUNER 25A1178



CHASSIS - TOP VIEW



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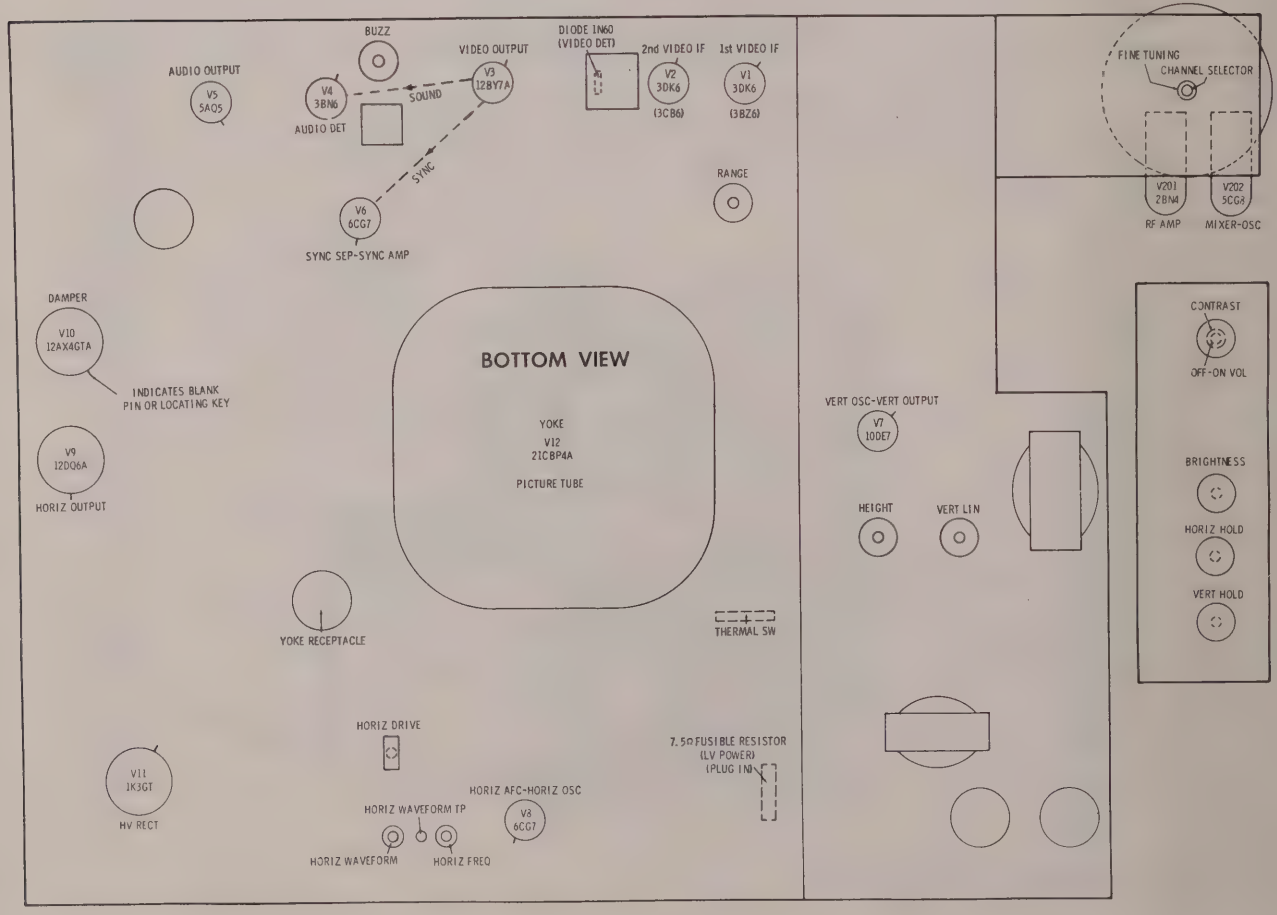
UHF TUNER 25A1159 & REAR COVER 25A1164

RESISTANCE MEASUREMENTS

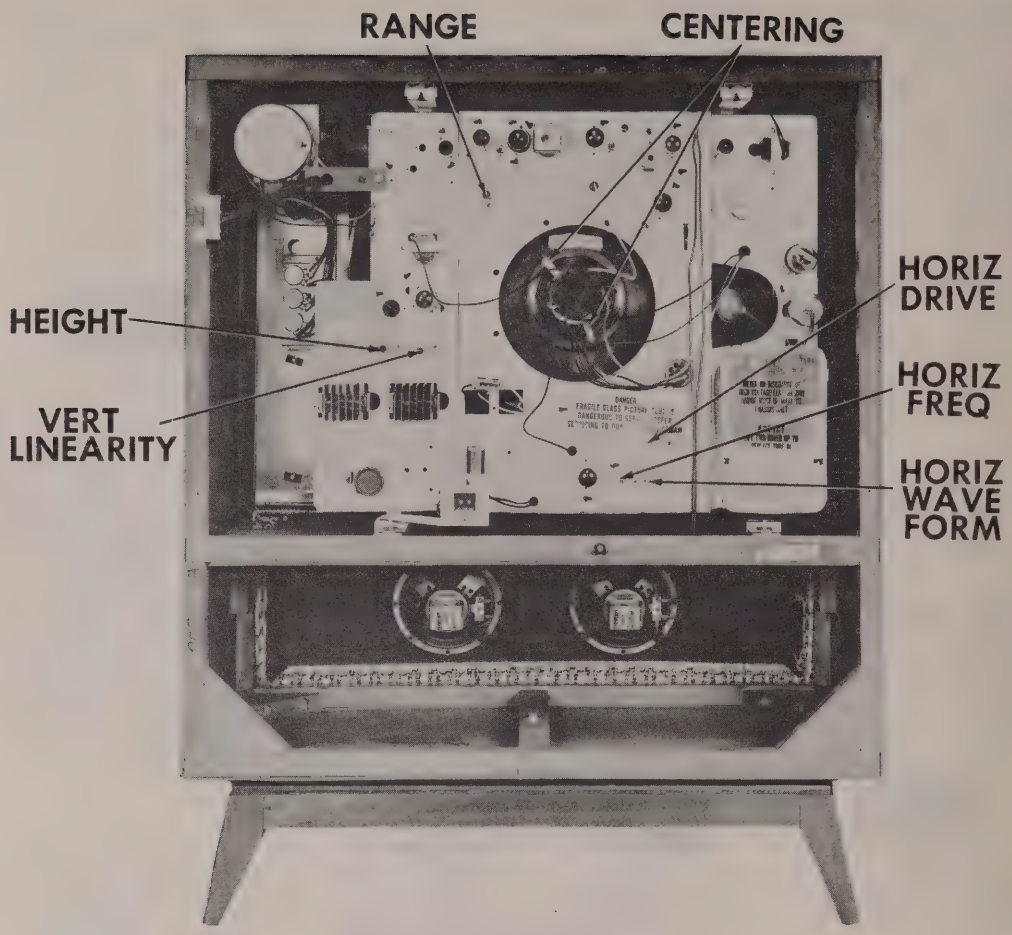
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3DK6	750K	56Ω	9Ω	10Ω	†10K	†10K	0Ω		
V2	3DK6	.1Ω	150Ω	10Ω	11Ω	†2000Ω	†2000Ω	0Ω		
V3	12BY7A	●300Ω	1meg	0Ω	13Ω	13Ω	12Ω	†3600Ω	†1550Ω	0Ω
V4	3BN6	●320Ω	6Ω	9Ω	8.5Ω	†6200Ω	4.8Ω	†330K		
V5	5AQ5	0Ω	330Ω	16Ω	15Ω	†900Ω	†470Ω	0Ω		
V6	6CG7	†1.5meg	2.2meg	0Ω	12Ω	11Ω	†13K	47K	0Ω	0Ω
V7	10DE7	†400Ω	2.2meg	2.2meg	15Ω	13Ω	● ǂ1.6meg	● 900K	200Ω	● 1800Ω
V8	6CG7	†56K	410K	0Ω	8.5Ω	7.5Ω	●†38K	1.5meg	410K	0Ω
V9	12DQ6A	TP	4Ω	NC	†10K	470K	NC	6Ω	100Ω	TOP CAP †10Ω
V10	12AX4GTA	NC	NC	¶1.2meg	NC	†.1Ω	NC	4Ω	2Ω	
V11	1K3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ǂ310Ω
V12	21CBP4A	6Ω	● 20K	Pin 6 †100K	Pin 10 ǂ10meg	Pin 11 ● 250K	Pin 12 7.5Ω			
V201	2BN4	0Ω	5000Ω	0Ω	.5Ω	†2500Ω	0Ω	5000Ω		
V202	5CG8	10K	†7100Ω	0Ω	2Ω	.5Ω	†2500Ω	†11K	0Ω	320K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 255V SOURCE.
ǂ MEASURED FROM PIN 3 OF V10.

NC NO CONNECTION.
TP TIE POINT

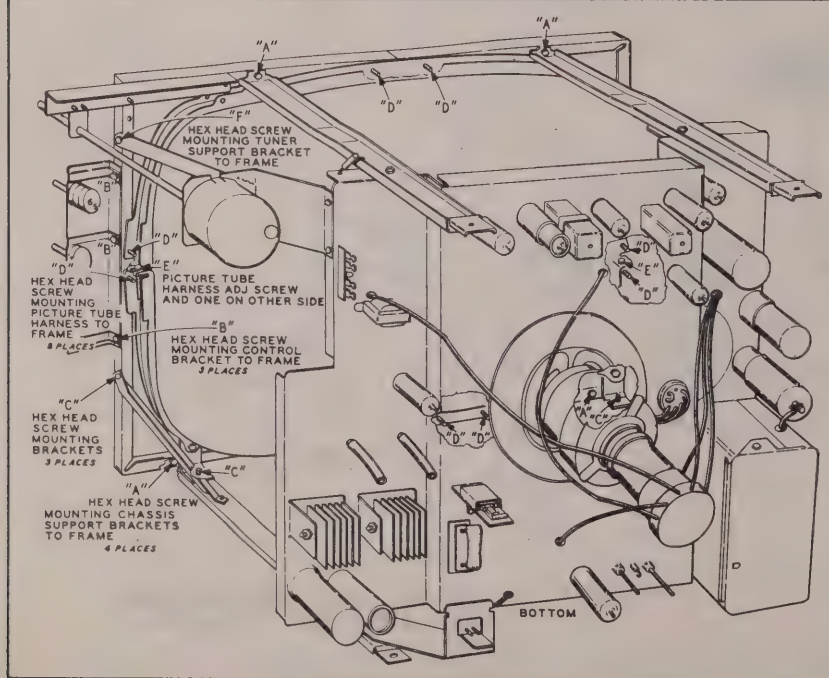


TUBE PLACEMENT CHART



CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS (cont)



PICTURE TUBE REMOVAL

1. Remove 4 screws marked "A".
2. Remove 3 screws marked "B" and 1 screw marked "F".
3. Remove 3 screws marked "C" and lift chassis from picture tube frame assembly.
4. Loosen 8 screws marked "D" and 2 screws marked "E".
5. Remove old picture tube and install new tube reversing the steps outlined, keeping the following in mind:

   a. There is a mold match line on the picture tube. Assemble the harness to the picture tube, centering the harness over the mold match line on picture tube. Holes are provided in harness to check the centering. Then tighten the screws marked "E" until the picture tube is firmly in place on harness.
   NOTE: If the above is not observed, difficulty may be encountered in replacing the entire assembly in the cabinet.

PHOTOFACT* Folder with CIRCUITRACE*

SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

MODEL 17D203Q (Ch. 1-543-1)

SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PHOTOFACT* Folder with CIRCUITRACE*

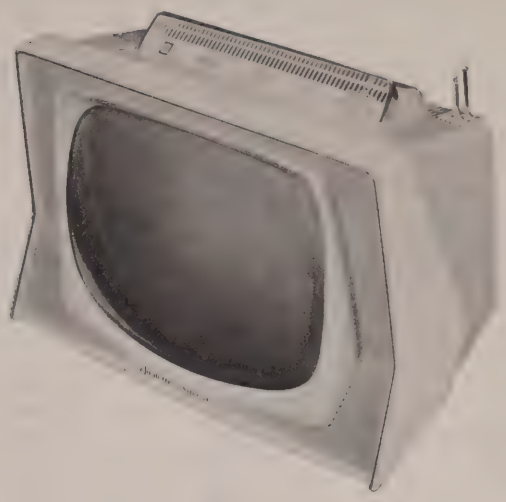
SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL 17D203Q

1. Remove 8 plastic screws holding rear cover. Remove rear cover.
2. Remove picture tube socket, yoke plug, HV and speaker leads.
3. Remove 2 metal screws holding plastic knob panel to the front of the cabinet.
4. Lift metal clip, located bottom left side of cabinet, up to release chassis.
5. Remove chassis.



MODEL 17D203Q (Ch. 1-543-1)

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Sylvania	MODELS	CHASSIS
		17D203Q, 17D303S, 17D303T	1-543-1
		17D203QU, 17D303SU, 17D303TU	1-543-2
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700Ellicott St., Batavia, N.Y.		
TYPE SET	Television Receiver		
TUBES	VHF-Sixteen, UHF-Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 170 Watts, 1.7 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

For picture tube, and safety glass cleaning, it is necessary to remove the chassis. (See "Disassembly Instructions".)

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, it is necessary to remove the rear cover. The adjustments are accessible thru a hole in the right side of the tuner rear cover as viewed from the rear of the tuner.

AGC

The AGC may be varied by means of an AGC control. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by means of a Focus control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency coil is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width coil. (For location, see "Tube Placement Chart".)

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Ratio Detector secondary (All) located on top of chassis.

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

PIN CUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible. Position the 2 magnets so that all sides are straight.

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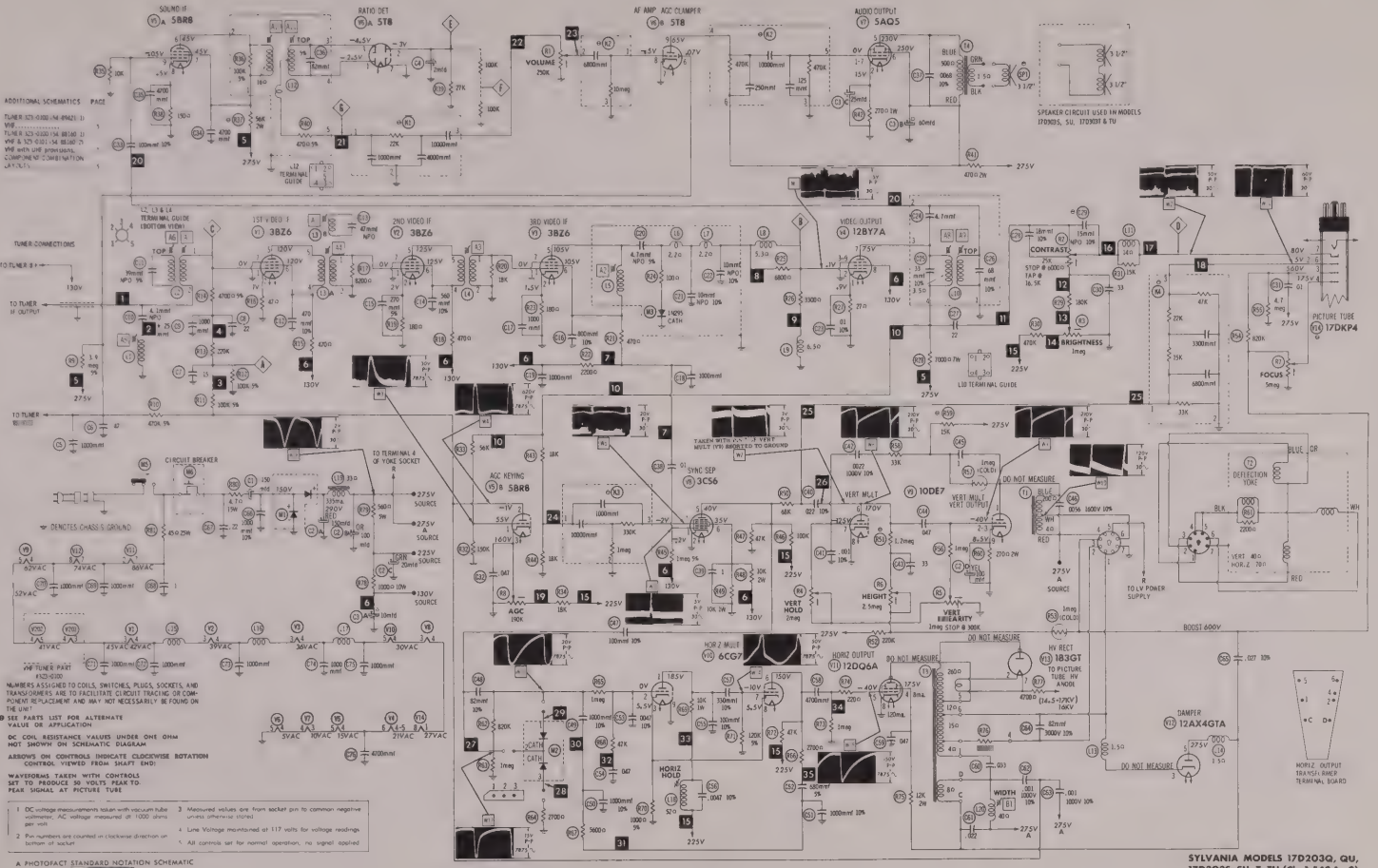
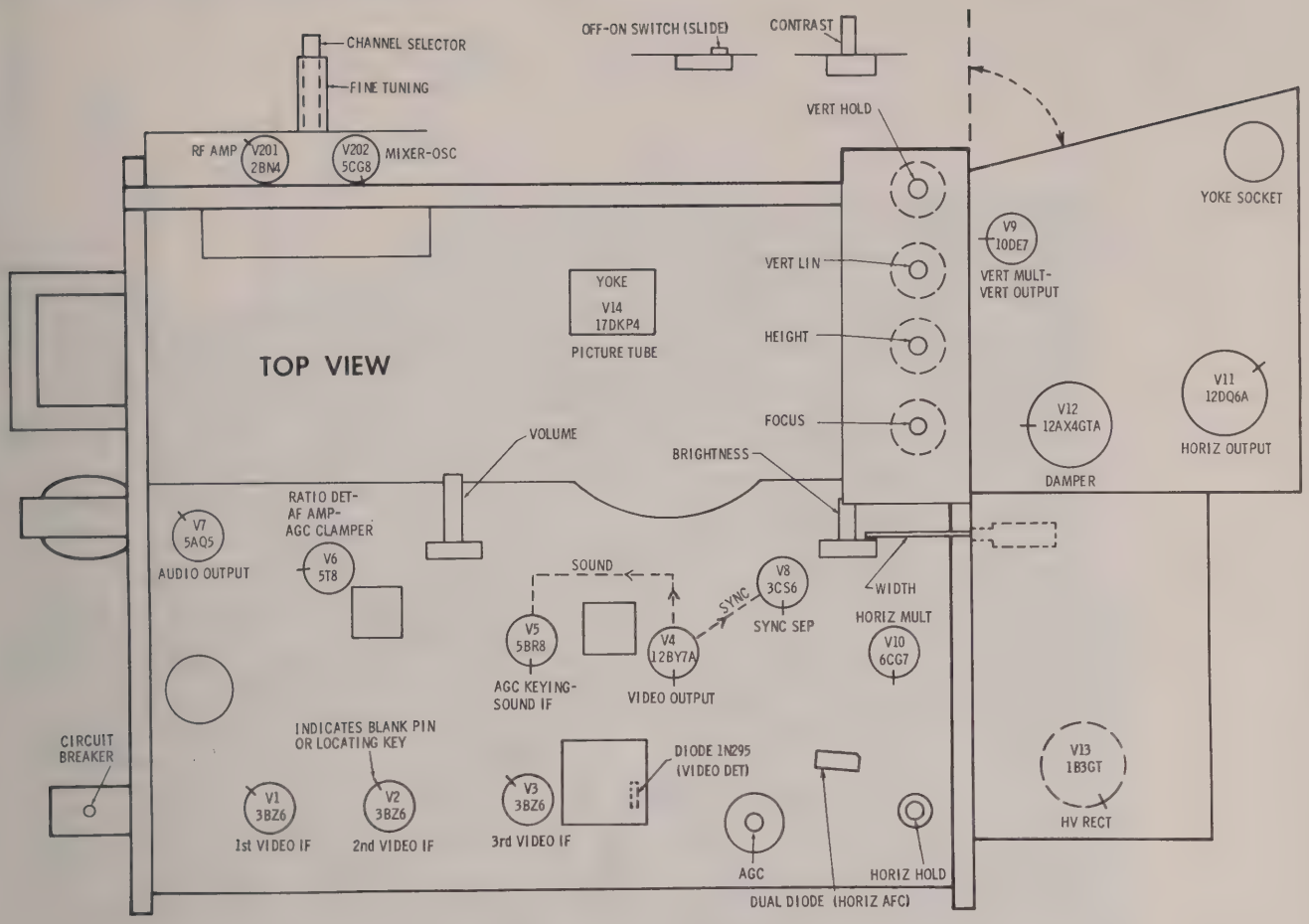
J261

SET 447 FOLDER 3


SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)
SOUND IF V5 A 5BR8
RATIO DET V5 B 5T8
AF AMP AGC CLAMPER V6 B 5T8
AUDIO OUTPUT V7 5AQ5
1ST VIDEO IF V1 3BZ6
2ND VIDEO IF V2 3BZ6
3RD VIDEO IF V3 3BZ6
VIDEO OUTPUT V4 12BY7A
VOLUME 250K
CONTRAST
BRIGHTNESS
PICTURE TUBE V14 17DKP4
FOCUS
DEFLECTION YOKE
TUNER CONNECTIONS
TO TUNER IF OUTPUT
TO TUNER
CIRCUIT BREAKER
AGC KEYING V5 B 5BR8
SYNC SEP V8 3CS6
VERT MULT V9 10DE7
VERT OUTPUT
VERT LINEARITY
HEIGHT
VERT HOLD
HORIZ MULT V10 6CG7
HORIZ OUTPUT V11 12DQ6A
HV RECT V13 1B3GT
DAMPER V12 12AX4GTA
WIDTH
HORIZ HOLD
BOOST 600V
DO NOT MEASURE
SPEAKER CIRCUIT USED IN MODELS 17D303S, SU, 17D303T & TU
ADDITIONAL SCHEMATICS PAGE
L2, L3 & L4 TERMINAL GUIDE (BOTTOM VIEW)
L10 TERMINAL GUIDE
TAKEN WITH 3 VERT MULT (Y9) GRIDS TO GROUND
TO TERMINAL 4 OF YOKE SOCKET
DENOTES CHASSIS GROUND
VHF TUNER PART #325-0100
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co. Inc 1959
SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

TUBE PLACEMENT CHART



SYLVANIA MODELS 17D203Q, QU, 17D303S, SU, T, TU (Ch. 1-543-1, -2)

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

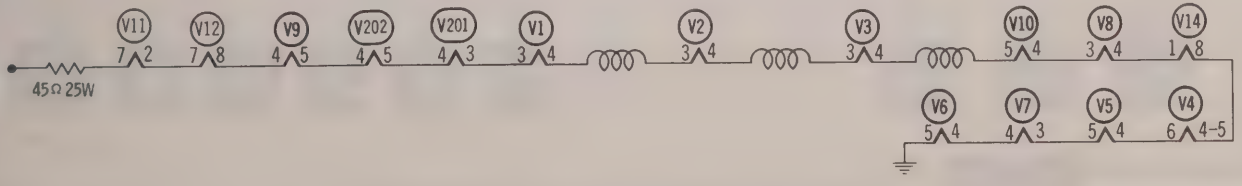
POWER SUPPLY FAILURE
No raster, no sound Rect. (B+)

SWEEP FAILURE
No raster, has sound Rect. (Horiz. AFC), V10, V11, V12, V13, V14, Rect. (B+)
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rect. (B+)
Vert. off freq. V9
Horiz. off freq. V10

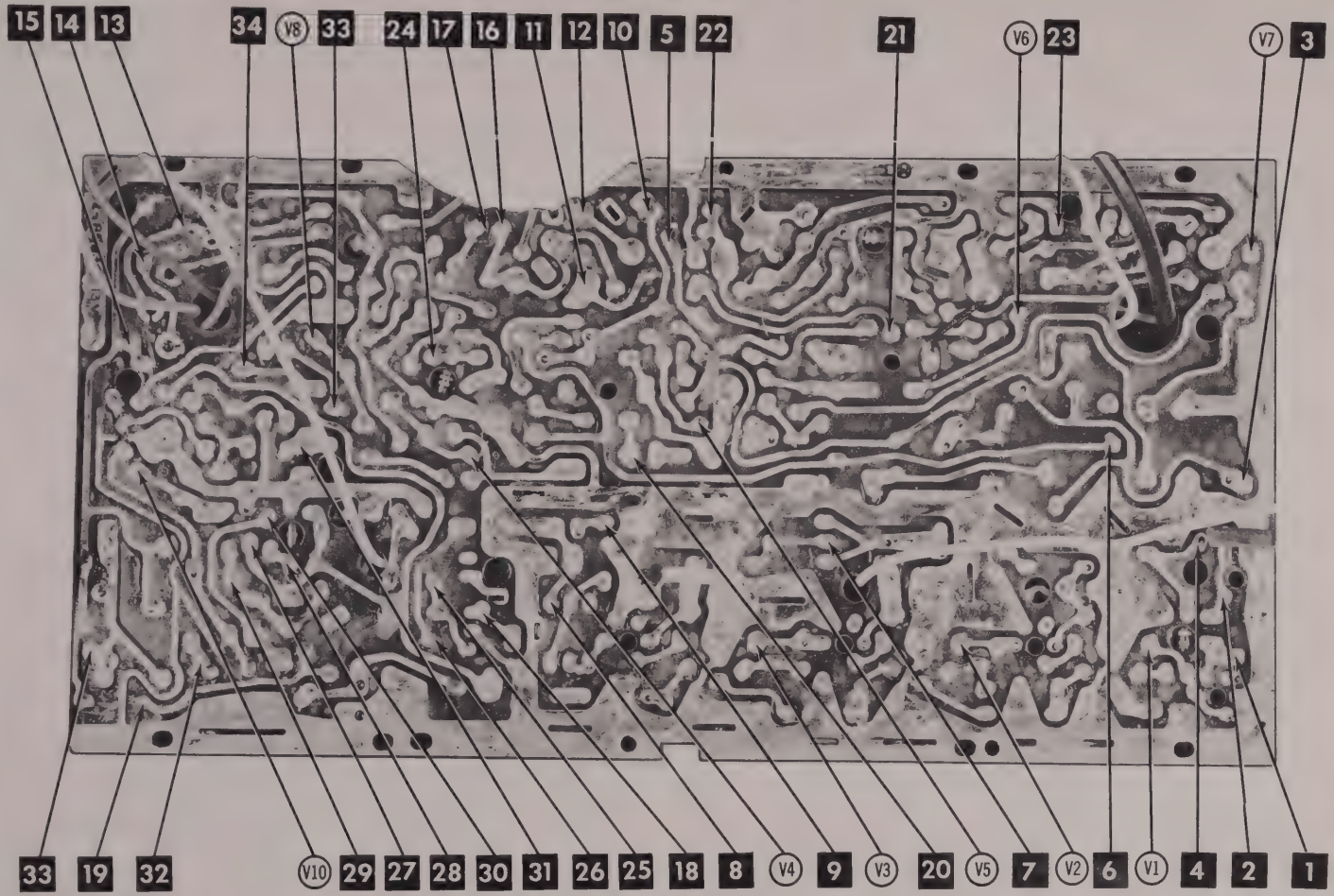
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V5, V6, V7
Overloaded picture V5, V6

SYNC FAILURE
No vert. sync V8
No horiz. sync V8, Rect. (Horiz. AFC)
No vert. or horiz. sync V8

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



FOLDER 3



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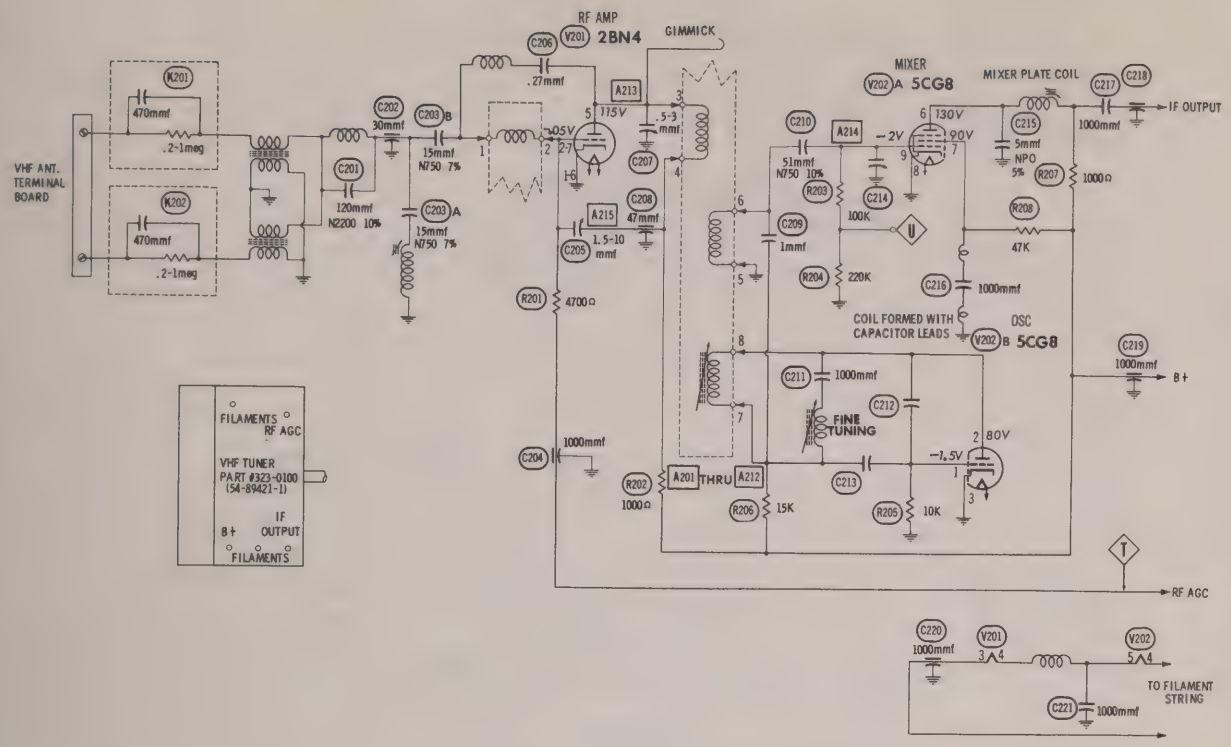
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



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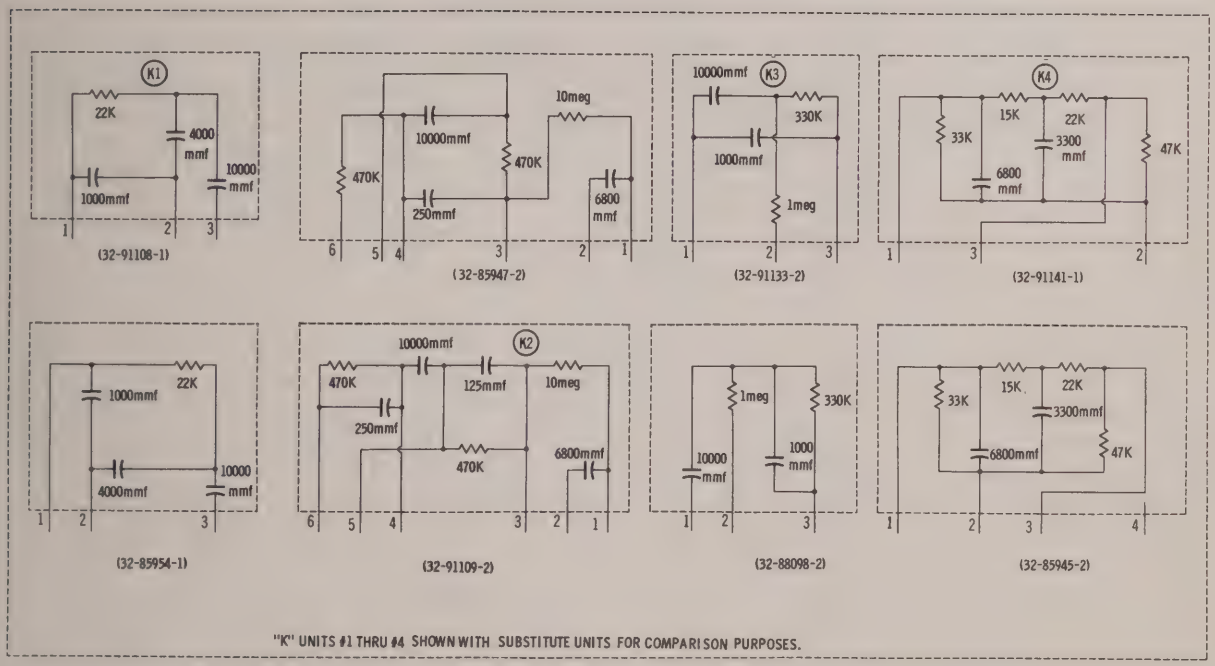
VHF TUNER 323-0100 (54-89421-1)



"K" UNITS #1 THRU #4 SHOWN WITH SUBSTITUTE UNITS FOR COMPARISON PURPOSES.

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COMPONENT COMBINATION LAYOUT

TUNER PARTS LIST AND DESCRIPTIONS

323-0100 (54-89421-1)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		N2200 10%							
C202	30									
C203A	15		N150 7%							
B	15		N150 7%							
C204	1000				EF-001	MFT-1000			503C-D1	
C205	1.5-10					829-10				
C206	.27									
C207	.5-3					829-3		CT565A		
C208	47									
C209	1.0				NPO-SI 1	TCZ-1		CNO-510	5TCCB-V1	
C210	51		N750 10%		N750-SI 51	TCN-51	C10Q51U		5TCU-Q51S 10% *	
C211	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C212										
C213										
C214										
C215	5		NPO 5%		NPO-DI 5		C10V5C		5TCCB-V5S 5% *	
C216	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C217	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C218										
C219	1000				EF-001	MFT-1000			503C-D1	
C220	1000				EF-001	MFT-1000			503C-D1	
C221	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

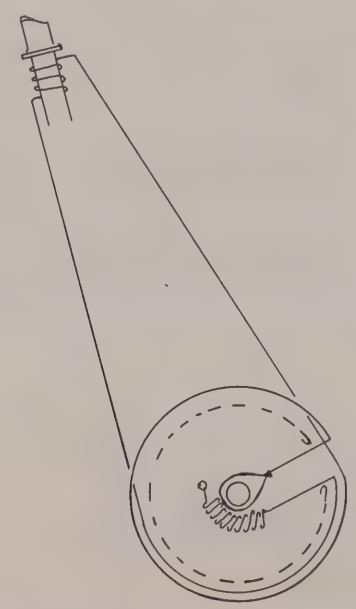
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SYLVANIA PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω			
R203	100K			
R204	220K			

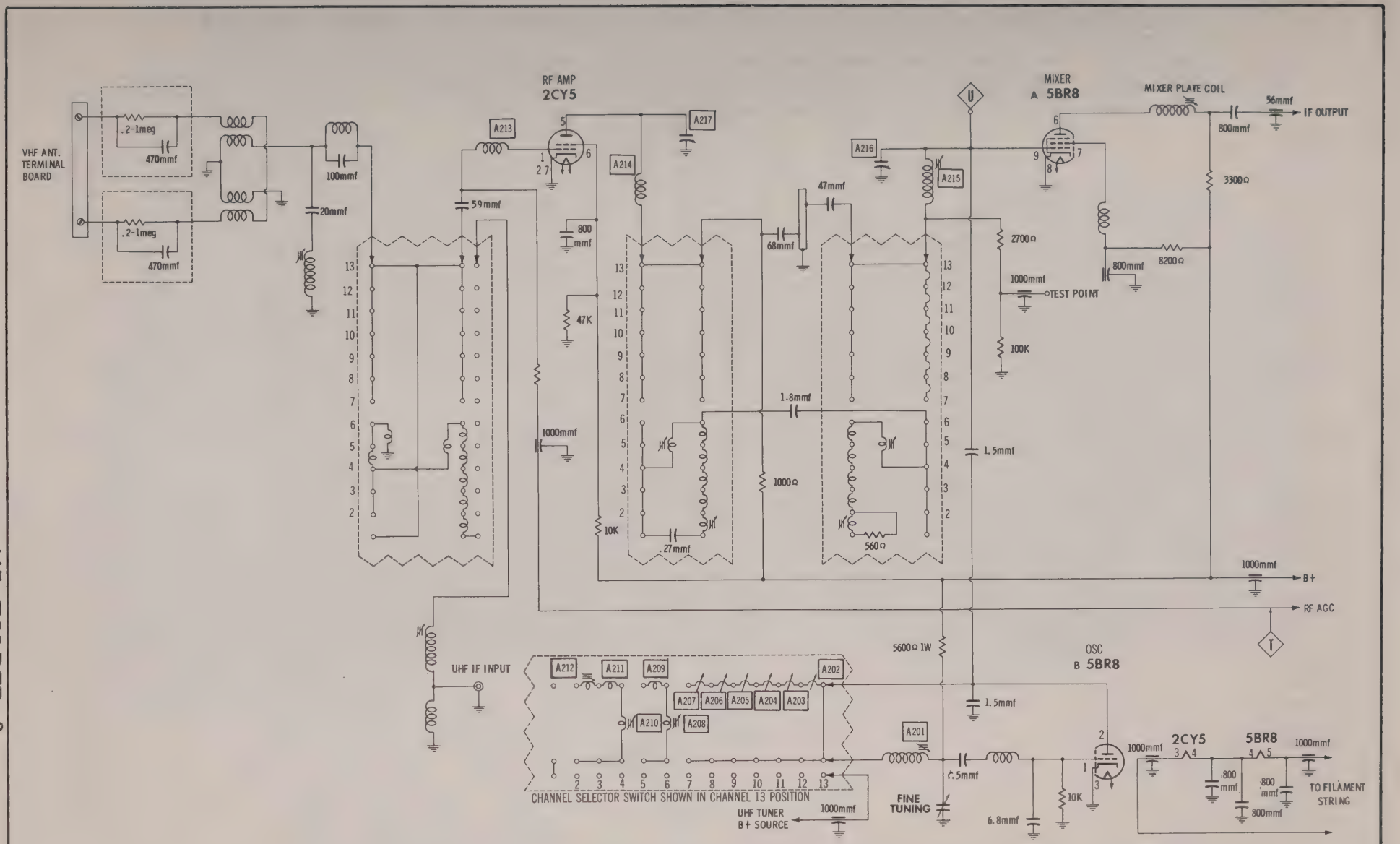
ITEM No.	RATING		SYLVANIA PART No.	NOTES
	OHMS	WATT		
R205	10K			
R206	15K			
R207	1000Ω			
R208	47K			

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	.2-1meg, 470mmf		Centralab	RC-471
				Sprague	AC1-1
K202	Antenna Isolation	.2-1meg, 470mmf		Centralab	RC-471
				Sprague	AC1-1



UHF DRIVE CORD STRINGING



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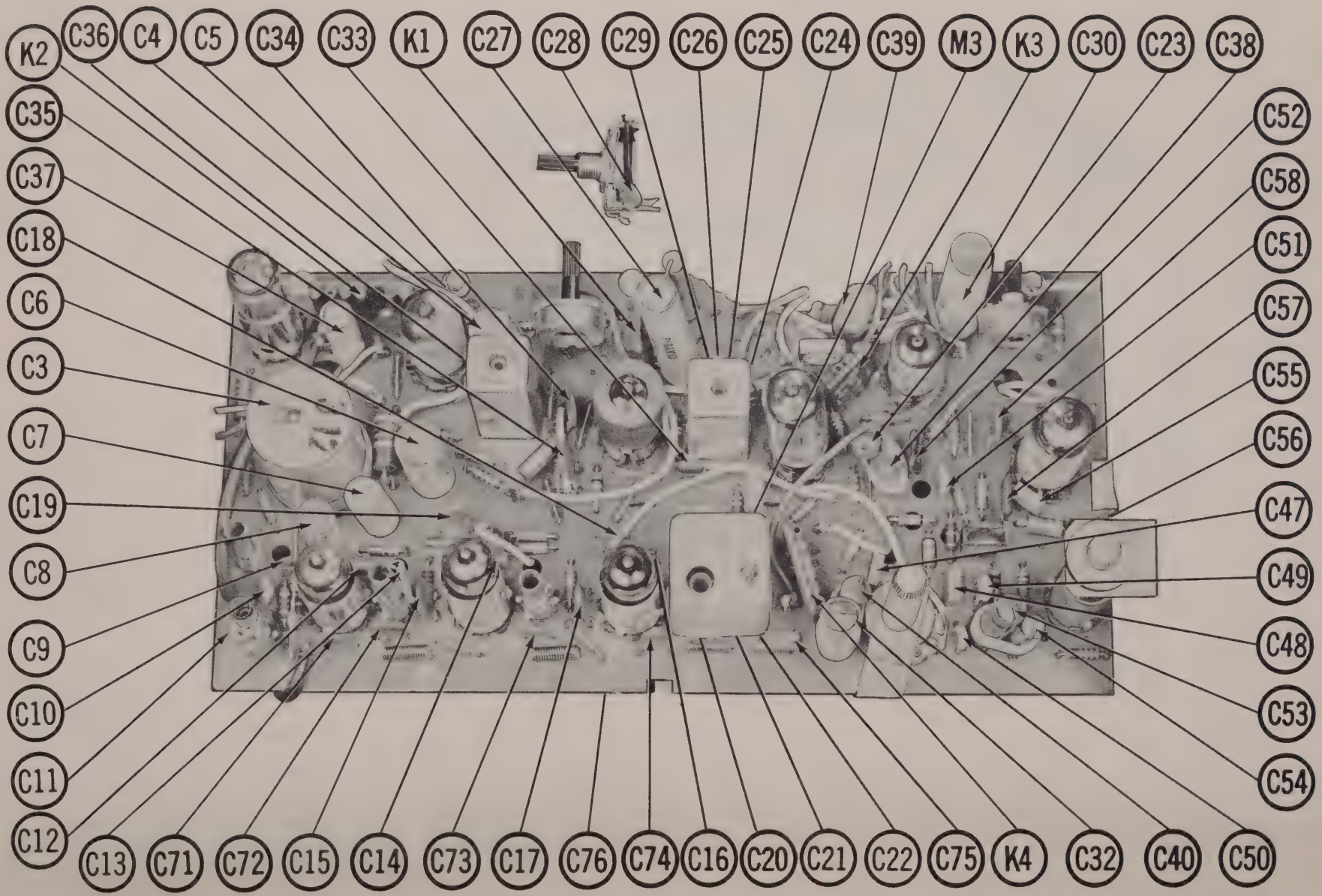
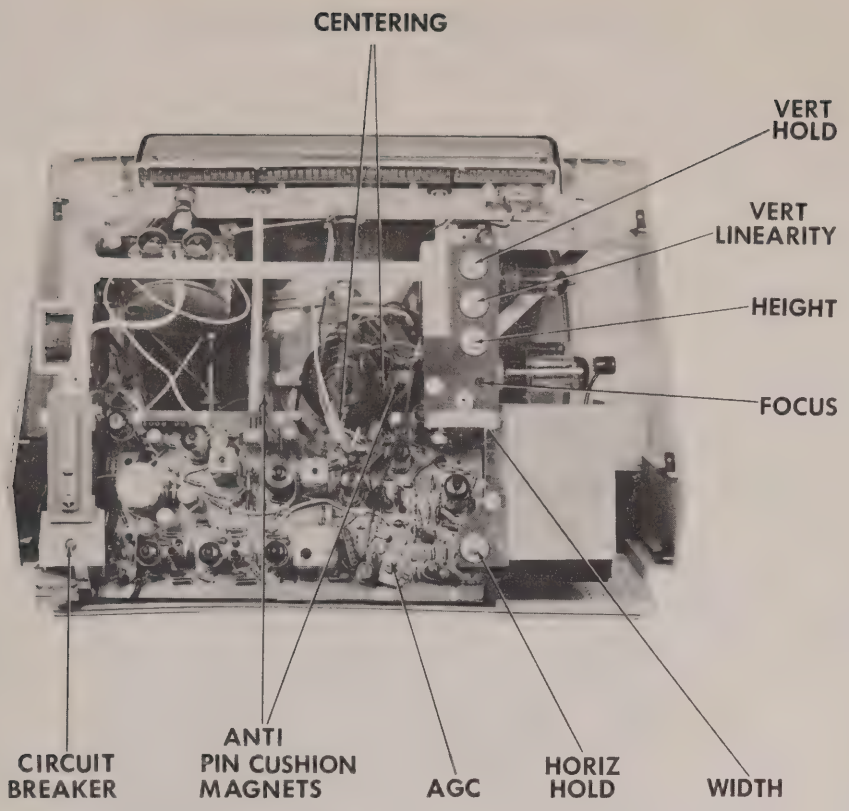
VHF TUNER 323-0100 (54-88160-1), with UHF provisions 323-0101 (54-88160-2)

SYLVANIA MODELS 17D203G, GU,
17D303S, SU, T, TU (Ch. 1-543-1, -2)
FOLDER 3



PRINTED BOARD - COMPONENT COMBINATION & CAPACITOR IDENTIFICATION



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

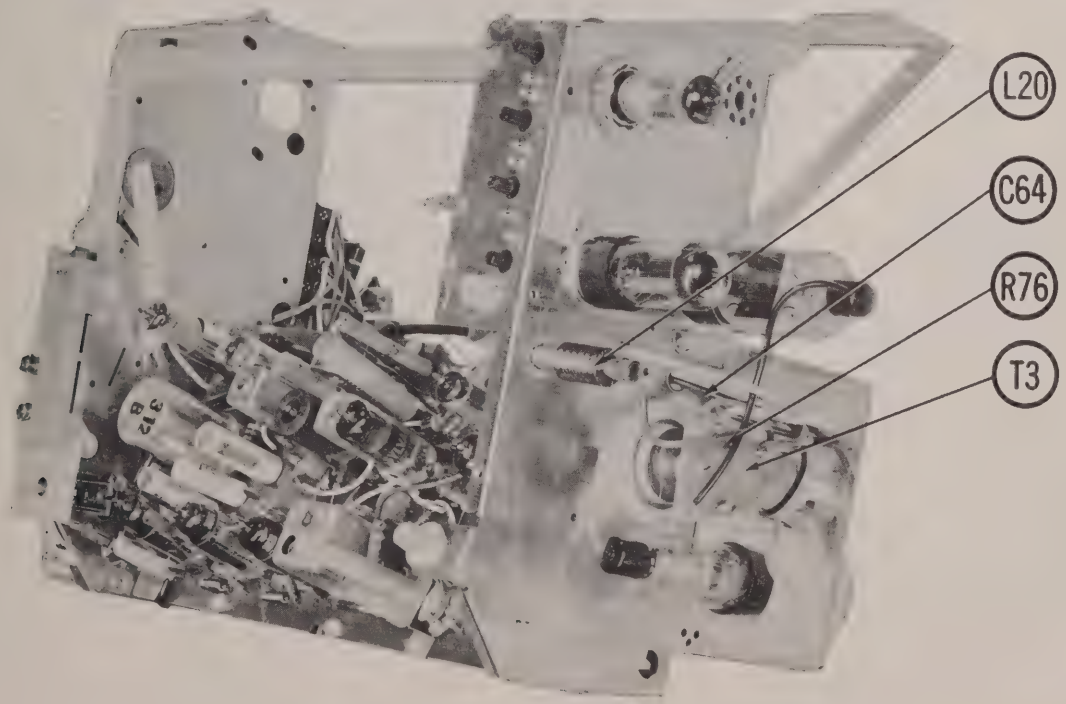
Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast controls for a normal picture.

Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

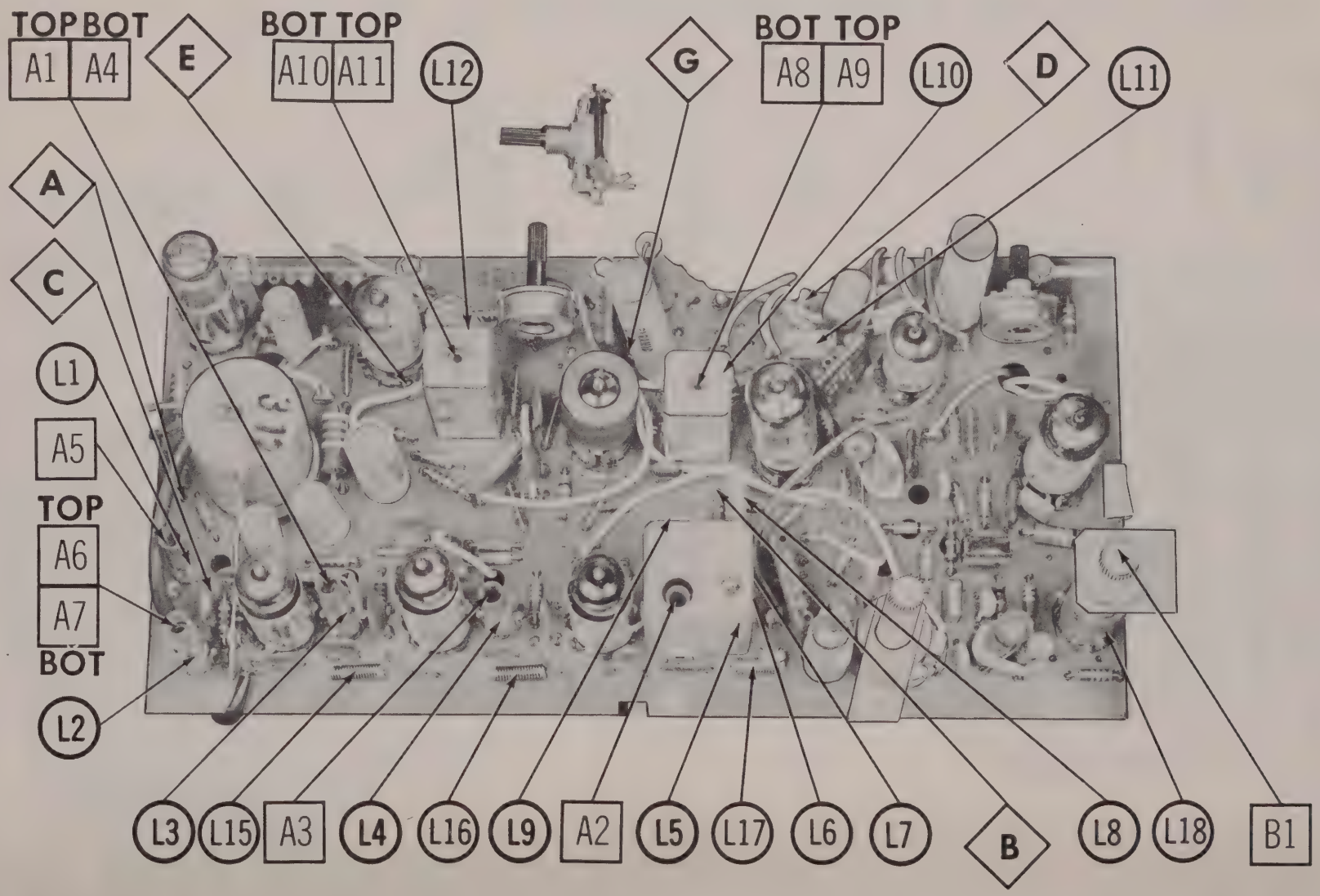
Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

Adjust the Width slug (B1) for a picture slightly wider than necessary to fill the picture mask horizontally.



HIGH VOLTAGE COMPARTMENT

SET 447 FOLDER 3



PRINTED BOARD - ALIGNMENT & INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
Allow a 20 minute warm-up period for the receiver and test equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Suggested Alignment Tools: A1 thru A11 ... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 5 volt bias supply to point (A). Positive to chassis.
If a separate marker generator is used, loosely couple marker generator to sweep generator output. Use low marker output.
Keep all leads from generators and scope shielded and short as possible.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Preset Mixer Plate Coil to maximum counterclockwise position.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.0047mfd	High side thru .0047mfd to point (C). Low side to chassis.	43.5MC (10MC Swp)	41.25MC 42.6MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 33K to point (B). Low side to chassis. (Across Video Det. load)	A1, A2, A3, A4	Adjust output of generator for response curve of 3 volt peak to peak on scope. Check for response similar to Fig. 1. Adjust A1 to place 41.25MC marker in trap notch, A3 to place 45.75MC marker, A4 to place 42.6MC marker and A2 for proper tilt. Retouch A3 and A4 until 45.75MC marker is at 60% and 42.6MC marker is at 80%.
2.	"	"	"	47.25MC	"	"	A5, A6	Adjust A5 and A6 for MINIMUM response of 47.25MC marker as in Fig. 2.
3.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	"	41.25MC 42.6MC 45.75MC 47.25MC	Any high band channel which causes MINIMUM distortion of response curve as Fine Tuning is rotated.	"	A7, & Mixer Plate Coil	Adjust A7 and Mixer Plate Coil for maximum gain and symmetry of response similar to Fig. 2. Repeat steps 1, 2 and 3.

4.5MC TRAP ALIGNMENT

Set Contrast control fully clockwise, and Brightness control fully counterclockwise.
Connect the negative lead of a 30 volt bias supply to point (A). Positive to chassis.
Connect a 4.5MC series tuned trap between point (D) and chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.0047mfd	High side thru .0047mfd to point (B). Low side to chassis. (Across Video Det. load)	4.5MC (Unmod)	Any non-interfering channel	RF probe across coil of 4.5MC series tuned circuit.	A8	Adjust for MINIMUM deflection.

ALTERNATE 4.5MC TRAP ALIGNMENT USING ON THE AIR SIGNAL

Turn set on and tune in a TV station. Adjust the Fine Tuning until sound bars can be seen in the picture. A fine grainy background will be noted in the picture. Adjust A8 until the grainy background is elininated or at a MINIMUM.
Readjust Fine Tuning for a normal picture.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM.

Connect two matched 100K (±1%) resistors in series from point (E) to chassis. The junction of these two resistors is alignment point (F) as shown on the schematic.
Connect bias as in 4.5MC Trap Alignment.
Set Contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.0047mfd	High side thru .0047mfd to point (B). Low side to chassis. (Across Video Det. load)	4.5MC (Unmod)	Any non-interfering channel	DC probe thru 100K to point (E). Common to chassis.	A9, A10	Adjust for maximum deflection.
6.	"	"	"	"	DC probe thru 100K to point (G). Common to point (F).	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 18 & 19

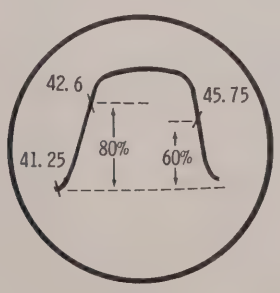


FIG.1

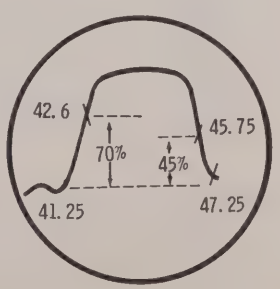


FIG.2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	3BZ6	
V2	2nd Video IF Amp	3BZ6	
V3	3rd Video IF Amp	3BZ6	
V4	Video Output	12BY7A	
V5	Aud. Keying-Sound IF	5BR8	
V6	Ratio Det.-AF Amp -		
	AGC Clamper	5T8	
V7	Audio Output	5AQ8	
V8	Sync Sep	3CB6	
V9	Vert Mult -Vert Output	10DE7	
V10	Horiz Mult	6CU7	
V11	Horiz Output	12DQ6A	
V12	Damper	12AX4GTA	
V13	HV Rect	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	SYLVANIA Part No.	GENERAL ELECTRIC Part No.	RCA Part No.	SYLVANIA Part No.	
V14	17DKP4			17DKP4 ③	③ Silver Screen 85

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	SYLVANIA Part No.	ARROVOX Part No.	CORNELL DUBILIER Part No.	MALLORY Part No.	PYRAMID Part No.	SPRAGUE Part No.	
C1	150	300	181-1025	PRI-100	XA0315	W3427	TD-300-150	TVA5-1447 *	
C2A	150	300	181-1026	PR4-250		WQ402		TVA5-4580 *	
B	100	300							
C	20	300							
D	100	25							
C3A	410	300	181-1036	AFH3-98-60		PPP336 4		TVL-2937	
B	460	300							
C	25	25							
C4	2	50	181-1041	PRS50V2	BBR3-50	TC303	TD-2-50	TVA-1301	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING			REPLACEMENT DATA						NOTES
	CAP	VOLT	TOL	SYLVANIA Part No.	ARROVOX Part No.	CENTRALAB Part No.	CORNELL DUBILIER Part No.	MALLORY Part No.	SPRAGUE Part No.	
C5	1000				BPD-001	DD-103	BYA10D1M	B-210	5HK-D1	
C8	47	100			PRSIN-47		BCSP47J		5EH-P47	
C7	15	300			PRSIN-15		BCSP15J	AC85015	5EH-P15	
C8	22	100			PRSIN-22		BCSP22J	AC85022	5EH-P22	
C9	1000				BPD-001	DD-103	BYA10D1M	B-210	5HK-D1	
C10	4.1		NPO ± .25mmf				TCS-29	C10Q29C	CNO-429	STCCB-Y4.1 ± .25mmf*
C11	39		NPO 5%				DE-47		JL-347	5GA-T47S 10% *
C12	470		10%				DTZ-47	C10Q47C	CNO-447	STCC-Q47
C13	47		NPO		NPO-DE 47		DTZ-47		CNO-447	STCC-Q47
C14	560		10%				DE-561		JL-356	5GA-T56S 10% *
C15	270		5%				DTZ-270			5GA-T27S 5% *
C16	800		10%						JL-380	5GA-T38 10% *
C17	1000				BPD-001	DD-103	BYA10D1M	B-210	5HK-D1	
C18	1000				BPD-001	DD-103	BYA10D1M	B-210	5HK-D1	
C19	1000				BPD-001	DD-103	BYA10D1M	B-210	5HK-D1	
C20	4.7		NPO 5%				DTZ-4R7	C10Y47C	CNO-547	STCCB-Y4R 5% *
C21	10		NPO 10%		NPO-DE 10		DTZ-10	C10Q1C	CNO-410	STCC-Q1S 10% *
C22	10		NPO 10%		NPO-DE 10		DTZ-10	C10Q1C	CNO-410	STCC-Q1S 10% *
C23	01	300	10%		Y5ACBR		DD-103	P5ACBR	GTM-D1	5TM-D1
C24	4.7				NPO-DE 4.7		DTZ-4R7	C10Y47C	CNO-410	STCCB-Y47
C25	33		10%		DE-33		DD-330	L10Q33	CNO-433	5GA-Q33S 10% *
C26	68		10%		DE-68		DD-680	L10Q68	CNO-468	5GA-Q68S 10% *
C27	22	600			P45IN-22		DCSP22J	AC85022	4SH-P22	
C28	33		10%		DE-18		DD-180	L10Q18	CNO-418	5GA-Q18S 10% *
C29	15		NPO 10%		NPO-DE 15		DTZ-15	C10Q15C	CNO-415	STCC-Q15S 10%* ①
C30	33	600			P46SN-33			PM4P33	GEM-4033	5HT-P33
C31	01	600			P46SN-01		DD-103	CUB4SN	GEM-401	4TM-D1
C32	047	600			P45IN-047		DF-503	BC5S47J	ACH547	4SH-S47
C33	100		10%		1469-0001		DD-101	2SB5T1	MCB2B5	MS-1U
C34	4700				BPD-0047		DD-472	BYA10D4TM	B-247	5HK-D47
C35	4700				BPD-0047		DD-472	BYA10D4TM	B-247	5HK-D47
C36	82		5%		1469-0000S3		DT2-82	2SB5Q82	CNO-482	MB-482
C37	0068	600	10%		P45IN-0068					5HK-D68
C38	01	600			P46SN-01		DD-103	CUB4SN	GEM-401	5TM-S
C39	1	400			P46SN-1		DF-104	CUB4P1	GEM-401	4TM-P1
C40	022	600	10%		Y84C22K			PM4P22	GTM-4122	4TM-P22
C41	001	600	10%		Y84C5IK			PM5IK	GTM-521	5TM-D1
C42	0022	1000	10%			189-0068			GTM-1522	10TM-D3
C43	33	600			P46SN-33			PM4P33	GEM-4033	5HT-P33
C44	047	600			P46SN-047		DF-503	CUB4S47	GEM-4147	4TM-S47
C45	1	400			P46SN-1		DF-104	CUB4P1	GEM-401	4TM-P1
C46	0056	1600	10%			189-0068			GEM-16S5S	MD-D56S *
C47	100		10%		1469-0001		DD-101	2SB2T1	MCB2S5	MS-1U
C48	82		10%		1469-0000S2		DD-820	2SB5Q82	CNO-482	MS-482
C49	1000		10%		DE-1000			1B5DI	JL-210	5GA-D1S 10% *
C50	1000		10%		DE-1000			1B5DI	JL-210	5GA-D1S 10% *
C51	1000		10%		DE-1000			1B5DI	JL-210	5GA-D1S 10% *
C52	680		5%		1469-0006S			1B5T6S		MB-568
C53	0047	200	10%		Y84C5D47			PM5D47	GTM-5247	5TM-D47
C54	047	300			P38SN-047		DF-502	CUB3S47	GTM-3147	3TM-S47
C55	100				1469-0001		DD-101	2SB3T1	MCB3S5	MS-3U
C56	0047	600	10%		Y84C4D47			PM4D47	GTM-4247	4TM-D47
C57	330		10%		1469-0003		DS-331	2SB4T3	JL-333	MS-333
C58	4700				BPD-0047		DD-472	BYA10D4TM	B-247	5HK-D47
C59	047	600			P45SN-047		DF-503	CUB4S47	GEM-4147	4TM-S47
C60	033	600			P45SN-033		DF-503	CUB4S33	GEM-4133	4TM-S33
C61	022	600			P45SN-022		DD-303	CUB4S22	GEM-4122	4TM-S22
C62	001	1000	10%			189-0070			GEM-16Z1	10TM-DI
C63	001	1000	10%			189-0070			GEM-16Z1	10TM-DI
C64	82	3000	10%			189-0081			3GP-482	30GAB-Q82S 10%*
C65	027	600	10%							5TM-S27S *
C66	1000		10%		DE-1000				JL-210	5GA-D1S 10% *
C67	22	600			P45SN-22			CUB4P22	GEM-4022	4TM-P22
C68	1	400			P1S4CM-1		DF-104	CUB4P1	GEM-401	4TM-P1
C69	1000				BPD-001		DD-103	BYA10D1M	B-210	5HK-D1
C70	1000				BPD-001		DD-103	BYA10D1M	B-210	5HK-D1
C71	1000				BPD-001		DD-103	BYA10D1M	B-210	5HK-D1
C72	1000				BPD-001		DD-103	BYA10D1M	B-210	5HK-D1

CAPACITORS (cont)

ITEM No	RATING			REPLACEMENT DATA					NOTES
	CAP	VOLT	TOL	SYLVANIA Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL DUBILIER Part No.	MALLORY Part No.	SPRAGUE Part No.	
C73	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C74	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C75	1000				BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C76	4700				BPD-0047	DD-472	BYA10D4TM	B-247	5HK-D47	

① Some versions may use 18mmf 10% in this application.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer

CONTROLS

ITEM No	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	IRC Part No.	MALLORY Part No.	
R1	250K	½	153-0129					Volume
R2	25K	½	153-0174					Contrast, Stop ② 8000Ω, tap ② 16.5K
R3	1meg	½	153-0134					Brightness
R4A	2meg	½	153-0173	RX-7S	A47-2meg-S	QU-158	PTA306	Vert. Hold
B	Shaft			Not Req.	RM-3	TYQ	Not Req.	
R5A	1meg	½	153-0172	RX-4S*	A47-1meg-S*	QU-157 *	PTA1B45L*	Vert. Lin., Stop ③ 300K
B	Shaft			Not Req.	RM-3	TYQ	Not Req.	
R6A	2 5meg	½	153-0171	RX-5S	A47-2.5meg-S	QU-239	SU565	Height
B	Shaft			Not Req.	RM-3	TYQ	Not Req.	
R7A	5meg	½	153-0180	AB-5T	A47-5meg-S	QU-161	PTA56L	Focus
B	Shaft			AE-19	RM-3	TYQ	Not Req.	AGC
R8	150K	½	153-0179					

* Use 300K resistor in series with right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SYLVANIA Part No.	NOTES
	OHMS	WATT		
R9	3.9meg 5%			
R10	470K 5%			
R11	100K 5%			
R12	100K 5%			
R13	330K			
R14	4700Ω 5%			
R15	470Ω			
R16	47Ω			
R17	5200Ω			
R18	470Ω			
R19	180Ω			
R20	18K			
R21	470Ω			
R22	2200Ω			
R23	180Ω			
R24	100Ω			
R25	6800Ω			
R26	3300Ω			
R27	27Ω			
R28	1000Ω	7	188-0088	
R29	150K			
R30	470K			
R31	18K			
R32	150K			
R33	56K			
R34	18K			
R35	10K			
R36	100K 5%	2		Note 1
R37	56K			
R38	180Ω			
R39	27K			
R40	470Ω 5%	2		
R41	47Ω	2		
R42	270Ω	1		
R43	18K			
R44	18K			
R45	lmeg 5%			

ITEM No.	RATING		SYLVANIA Part No.	NOTES
	OHMS	WATT		
R46	100K			
R47	47K			
R48	10K	2		
R49	10K	1		
R50	56K			
R51	1. 5meg			Note 2
R52	220K			
R53	lmeg Cold		189-0082	
R54	820K			
R55	4. 7meg			
R56	lmeg			
R57	lmeg Cold		189-0082	
R58	33K			
R59	18K			Note 3
R60	270Ω	2		
R61	2200Ω			
R62	820K			
R63	lmeg			
R64	270Ω			
R65	lmeg			
R66	270Ω			
R67	560Ω			
R68	47K	1		
R69	10K			
R70	1000Ω 5%			
R71	120K			
R72	47Ω			
R73	lmeg			
R74	220Ω			
R75	12K	2		
R76	4700Ω			
R77	4700Ω			
R78	1000Ω	10	185-0006	
R79	560Ω	5	185-0029	
R80	4. 7Ω	15	185-0007	
R81	68Ω	35	187-0041	

Note 1. Some versions may use 18K 2W in this application.
Note 2. Some versions may use 820K in this application.
Note 3. Some versions may use 18K in this application.

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA							NOTES
		SYLVANIA Part No.	Gramer Part No.	Meissner Part No.	Merit Part No.	Miller Part No.	Ram Part No.		
L2	47.25MC Trap	128-0036							
L2A	1st Video IF	120-0024							
B	47.25MC Trap								
L3A	2nd Video IF	119-0023							
B	41.25MC Trap								
L4	3rd Video IF	119-0021							
L5	4th Video IF	119-0022							
L6	RF Choke	128-0030	19-3264	19-3264	BC-566	4612			10.8uh
L7	RF Choke	128-0030	19-3264	19-3264	BC-566	4612			10.8uh
L8	Series Peaking Coil	131-3036	19-3075	19-3075		6172	VP-3		7uh
L9	Shunt Peaking Coil	131-3035	19-3100	19-3100	TY-194	6112	VP-3		100uh
L10A	1st Sound IF	120-0023							
B	4.5MC Trap								
L11	Series Peaking Coil	121-2037	19-3375	19-3375	TY-301	6134	VP-7		380uh
L12	Ratio Det.	128-0015							
L13	RF Choke	128-0010	19-1005	19-1005	BC-586	4612			11 uh
L14	RF Choke	128-0010	19-1005	19-1005	BC-586	4612			11 uh
L15	Fil. Choke	118-0032	19-1000	19-1000	BC-561	4602			1. 2uh
L16	Fil. Choke	118-0032	19-1000	19-1000	BC-561	4602			1. 2uh
L17	Fil. Choke	118-0032	19-1000	19-1000	BC-561	4602			1. 2uh

TRANSFORMER (HORIZ. OSC.)

ITEM No	DC RES		REPLACEMENT DATA						NOTES
	PRI	SEC	SYLVANIA Part No.	Halldorson Part No.	Merit Part No.	Miller Part No.	Ram Part No.	Thordarson Part No.	
L25	53Ω		132-0024						Horiz. Freq

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA							
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~(.)	SYLVANIA Part No	Halldorson Part No	Merit Part No	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No
L19	.330A	33Ω	1.1 Hy.	140-0030						

COILS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		SYLVANIA Part No	Halldorson Part No	Merit Part No	Miller Part No	Ram Part No	Rogers Part No	Stancor Part No	Thordarson Part No	Triad Part No
L20	Width Coil (12-504MH)	132-0021	WC-19	MWC-3	6319				WC-19	

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	SYLVANIA Part No	REPLACEMENT DATA
K1	De-Emphasis	1000mmf, 4000mmf, 10000mmf, 22K	190-0034 ①	Item #32-B108-1 Centralab PC-334 Sprague V17
K2	Audio Coupling	125mmf, 250mmf, 6900mmf, 10000mmf, 470K, 470K, 10meg	190-0039 ②	Item #32-B108-2 Sprague TCS-18
K3	Sync Take-Off	1000mmf, 10000mmf, 330K, 1meg	190-0043 ③	Item #32-B133-2
K4	Vert. Retrace	2300mmf, 6900mmf, 15K, 22K, 33K, 47K	190-0037 ④	Item #32-B148-1

Note 1. Some versions may use Item #32-B1054-1 with same part number in this application.
Note 2. Some versions may use Item #32-B5947-2 with same part number in this application.
Note 3. Some versions may use Item #32-B8098-2 with same part number in this application.
Note 4. Some versions may use Alternate Item #32-B5946-2 in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		SYLVANIA Part No	Halldorson Part No	Merit Part No	Ram Part No	Rogers Part No	Stancor Part No	Thordarson Part No	Triad Part No
T1	Vert. Output	241-0045	26575 ①	A-3223 ②	V31A ③		A-8148 ④	26575 ① ②	A-31EX ④
T2	Yoke-Horiz. (31MH) (10°)-Vert (34MH) Rear Cover & Centering Device	190-0034	Y-48 ⑤	MDF-U5 ⑤				Y-46 ⑤	Y-96
	Horiz. Output	241-0046	FLY-140*	HVO-128*				FLY-149*	D-159
T3		400-0027							

① Use 8 to 1 turns ratio.
② Connect as autoformer.
③ Cut and tape green lead. Drill new mounting hole(s).
④ Cut and tape red and black lead.
⑤ Use original rear cover and yoke plug. Mount same as original. Connect yoke terminal #5 to yoke plug pin #1, yoke terminals #6 and #2 to plug pin #2, yoke terminal #1 to plug pin #3, yoke terminal #4 to plug pin #6, yoke terminal #8 to plug pins #4 and #5, yoke clamp lead to plug pin #7.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	5	5	5				5	
	6	6	6				6	
	2	2	2				2	
	1	1	1				1	
	D	D	D				D	
	C	C	C				C	
Connect Width Coil Across	Term "D" & B+	Term "D" & B+	Term "D" & B+				Term "D" & B+	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI	SEC	SYLVANIA Part No.	Halldorson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	
T4	5100Ω	8-8Ω	143-0072	26364	A-2902	AU-604	A-3849	26364	S-51X

PARTS LIST & DESCRIPTION (continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	3½"	PM	5-6Ω	539-0352 ① (12-89538-1)		① Models 17D203Q, QU ② Models 17D303S, SU, 17D303T, TU
	3½"	PM		539-0350 ② (12-89028-1)		
	3½"	PM		539-0351 ② (12-89029-1)		

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				
	CURRENT (Measured)	SYLVANIA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1 M2	.335A	517-0019 ① 624-0007 ②	HA504 ③④ K1615 ②	SD500 ③④ SD91 ③④	40K③④	① Dual Germanium Type. ② Dual Selenium Type. ③ Silicon Type. ④ 2 Required.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		SYLVANIA PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N295	1N295	1N60	1N295	Video Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M4	Tuner	323-0100	VHF (54-89421-1)
	Tuner	323-0100	VHF (54-88160-1)
	Tuner	323-0101	VHF (54-88160-2)
	Tuner	323-0102	UHF (54-88853-2)
M5	Switch	571-0018	Off-On (SPDT, Slide Type)
M6	Circuit Breaker	191-0026	

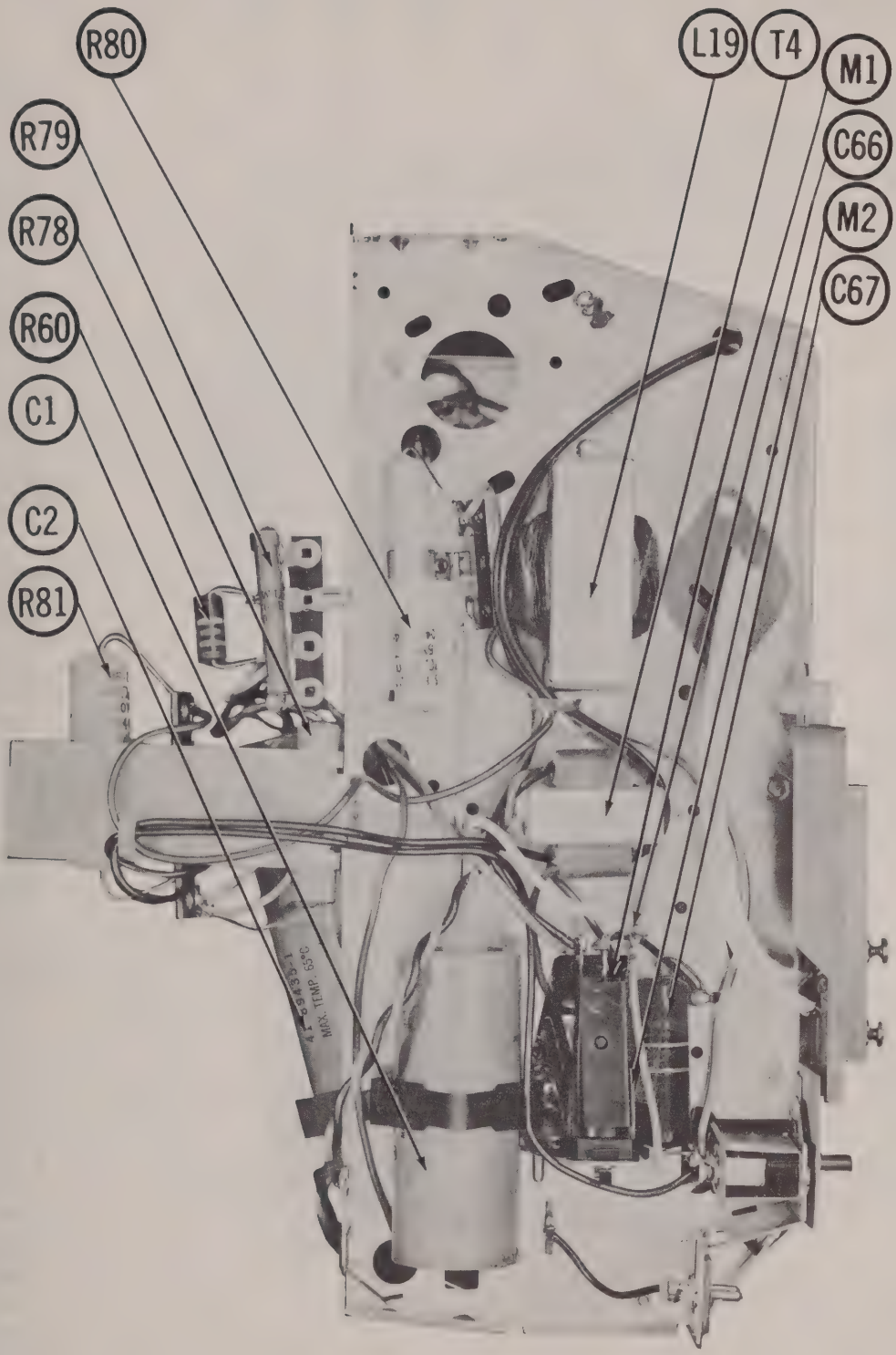
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

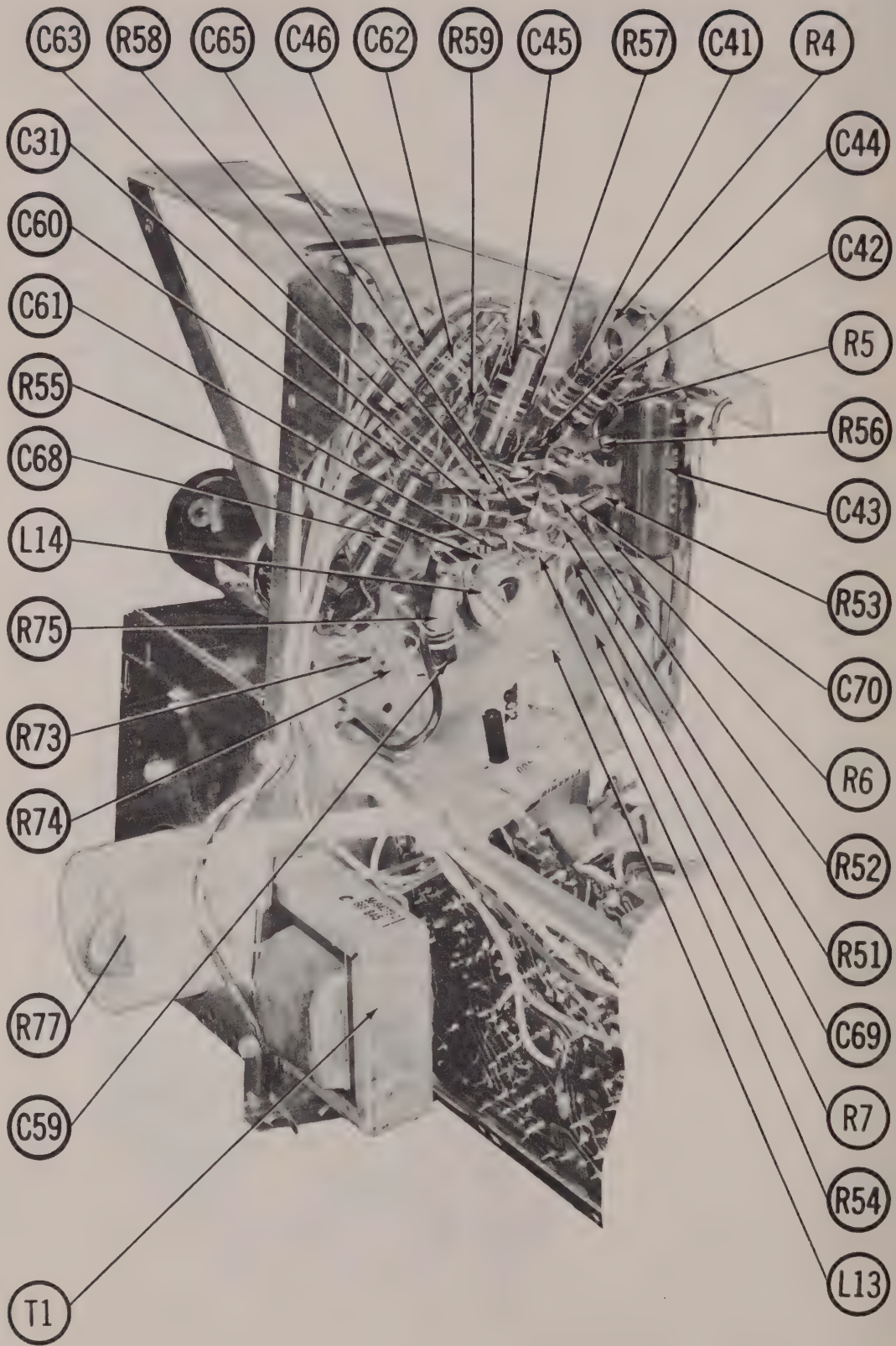
NAME	PART NO.	DESCRIPTION
Safety Glass	715-0033	
Knob	743-0095	Channel Selector, Model 17D203Q
Knob	743-0100	Channel Selector, Model 17D203QU
Knob	741-0069	Channel Selector, Model 17D303S
Knob	743-0087	Channel Selector, Model 17D303SU
Knob	743-0088	Channel Selector, Model 17D303T
Knob	743-0089	Channel Selector, Model 17D303TU
Knob	741-0070	VHF Fine Tuning, Models 17D203Q, 17D303S, 17D303T
Knob	741-0071	VHF Fine Tuning, Models 17D203QU, 17D303SU, 17D303TU
Knob	740-0194	UHF Fine Tuning, Models 17D203QU, 17D303SU, 17D303TU
Knob	740-0252	Volume, Brightness, Models 17D203Q, 17D203QU
Knob	740-0233	Volume, Brightness, Models 17D303S, 17D303SU
Knob	740-0243	Volume, Brightness, Models 17D303T, 17D303TU
Knob	740-0246	Contrast, Models 17D203Q, 17D203QU
Knob	740-0229	Contrast, Models 17D303S, 17D303SU
Knob	740-0239	Contrast, Models 17D303T, 17D303TU
Knob	740-0247	Vert. Hold, Vert. Linearity, Height, Models 17D203Q, 17D203QU
Knob	740-0230	Vert. Hold, Vert. Linearity, Height, Models 17D303S, 17D303SU
Knob	740-0240	Vert. Hold, Vert. Linearity, Height, Models 17D303T, 17D303TU
Knob	740-0249	Horiz. Hold, Models 17D203Q, 17D203QU
Knob	740-0232	Horiz. Hold, Models 17D303S, 17D303SU
Knob	740-0242	Horiz. Hold, Models 17D303T, 17D303TU
Knob	740-0253	Off-On, Models 17D203Q, 17D203QU
Knob	740-0234	Off-On, Models 17D303S, 17D303SU
Knob	740-0244	Off-On, Models 17D303T, 17D303TU
Knob	740-0248	AGC, Models 17D203Q, 17D203QU
Knob	740-0231	AGC, Models 17D303S, 17D303SU
Knob	740-0241	AGC, Models 17D303T, 17D303TU
Handle	818-0180	Models 17D203Q, 17D203QU, 17D303S, 17D303SU
Handle	818-0186	Models 17D303T, 17D303TU

WIRING DATA

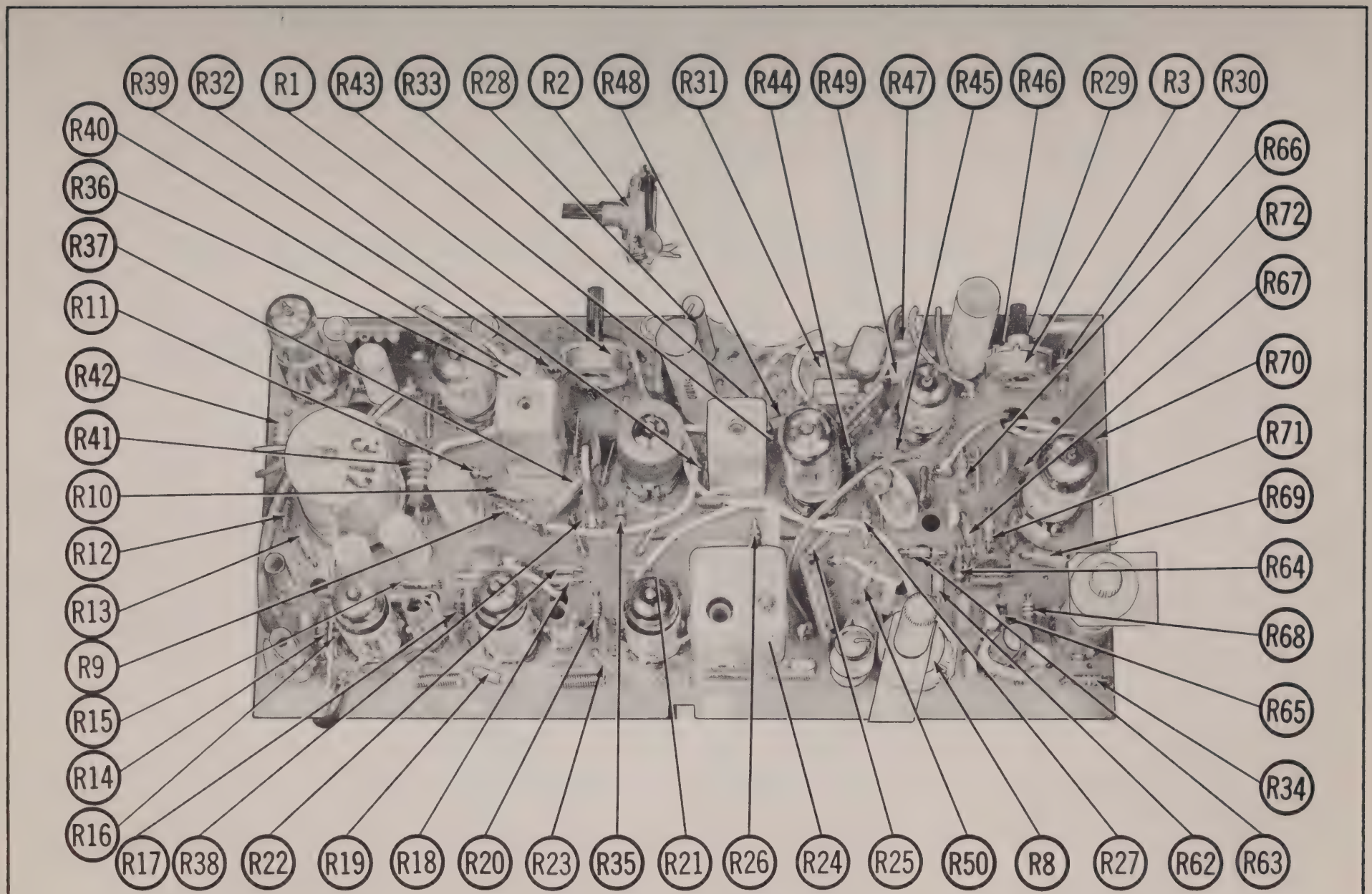
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



CHASSIS SIDE VIEW



SWEEP CHASSIS - BOTTOM VIEW



PRINTED BOARD - RESISTOR IDENTIFICATION

SYLVANIA MODELS 17D2030, QU,
17D3035, SU, T, TU (Ch. 1-543-1, -2)

FOLDER 3

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNER 323-0100 (54-88160-1) & 323-0101 (54-88160-2)

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Connect the negative lead of a 25 volt bias supply to the grid of the Horizontal Output tube to eliminate the horizontal pulse interference on the response curve.

VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	215.75MC	13	Vert. Amp. thru 47K across Video Det. load.	A201	Adjust to place sound marker in trap notch as in Fig. 201.
			207MC	209.75MC	12		A202	
			201MC	203.75MC	11		A203	
			195MC	197.75MC	10		A204	
			189MC	191.75MC	9		A205	
			183MC	185.75MC	8		A206	
			177MC	179.75MC	7		A207	
			85MC	87.75MC	6		A208	
			79MC	81.75MC	5		A209	
			69MC	71.75MC	4		A210	
			63MC	65.75MC	3		A211	
			57MC	59.75MC	2		A212	

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across VHF Antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point (U). Low side to chassis.	A213, A214, A215	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust A213 for maximum gain, A214 to position markers and A215 for correct tilt.
3.	"	"	177MC	175.25MC 179.75MC	7	"	A216, A217	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Repeat steps 1 and 2.

FIG. 201

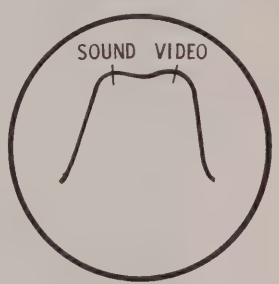


FIG. 202

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS 323-0100 (54-89421-1)

Use an ISOLATION TRANSFORMER TO PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A212 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A213 thru A215 ..... GENERAL CEMENT #9087, 9089
WALSCO #2528

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A202	
			201MC	199.25MC 203.75MC	11		A203	
			195MC	193.25MC 197.75MC	10		A204	
			189MC	187.25MC 191.75MC	9		A205	
			183MC	181.25MC 185.75MC	8		A206	
			177MC	175 25MC 179.75MC	7		A207	
			85MC	83.25MC 87.75MC	6		A208	
			79MC	77.25MC 81.75MC	5		A209	
			69MC	67.25MC 71.75MC	4		A210	
			63 MC	61.25MC 65.75MC	3		A211	
			57MC	55.25MC 59.75MC	2		A212	

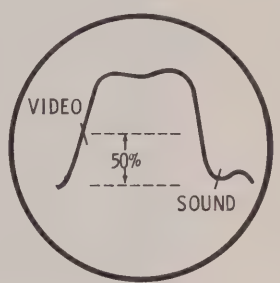


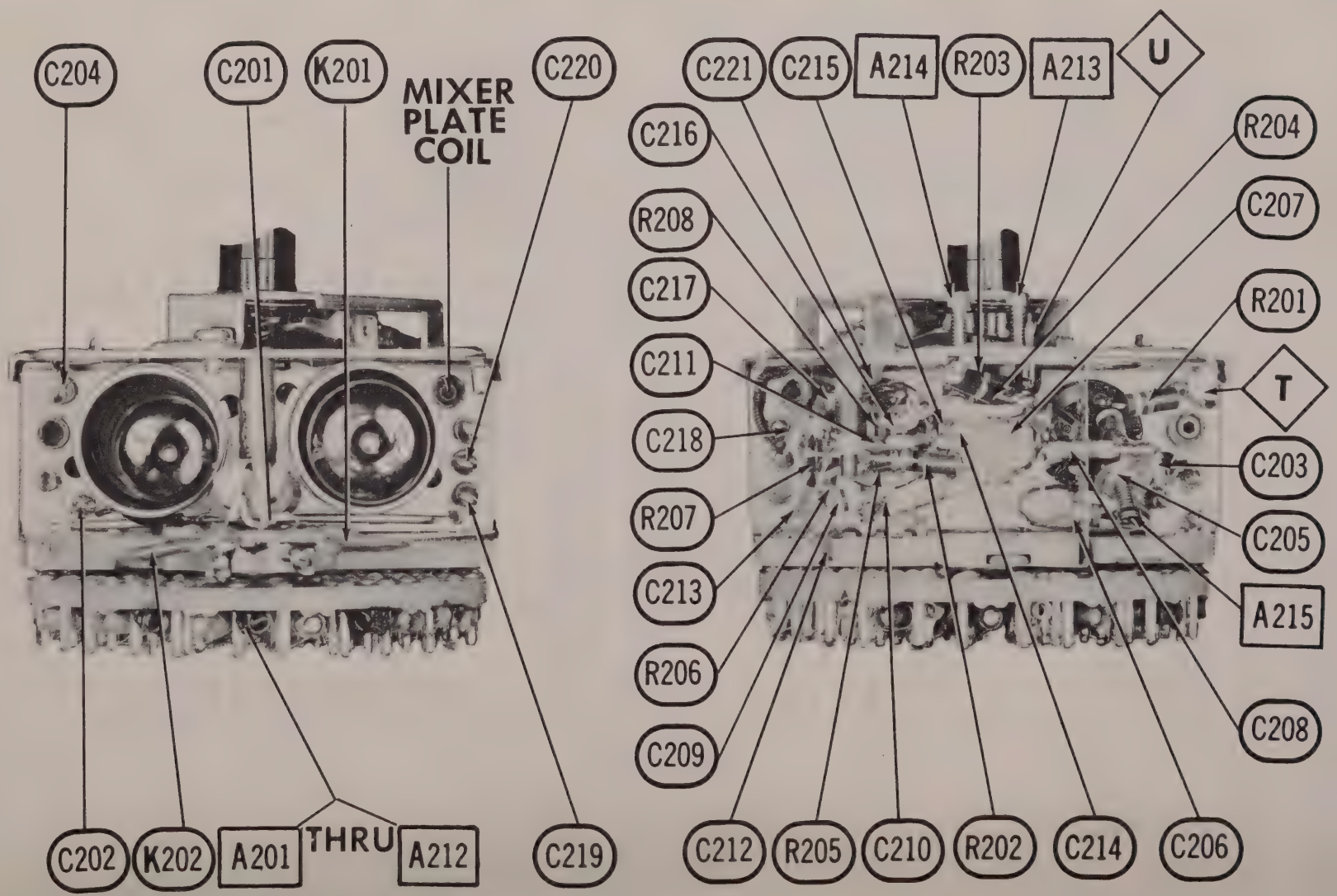
FIG. 201

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 4.5 volt bias supply to point (T). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A213, A214, A215	Adjust A213 and A214 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A215 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	"	A216	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

FIG. 202



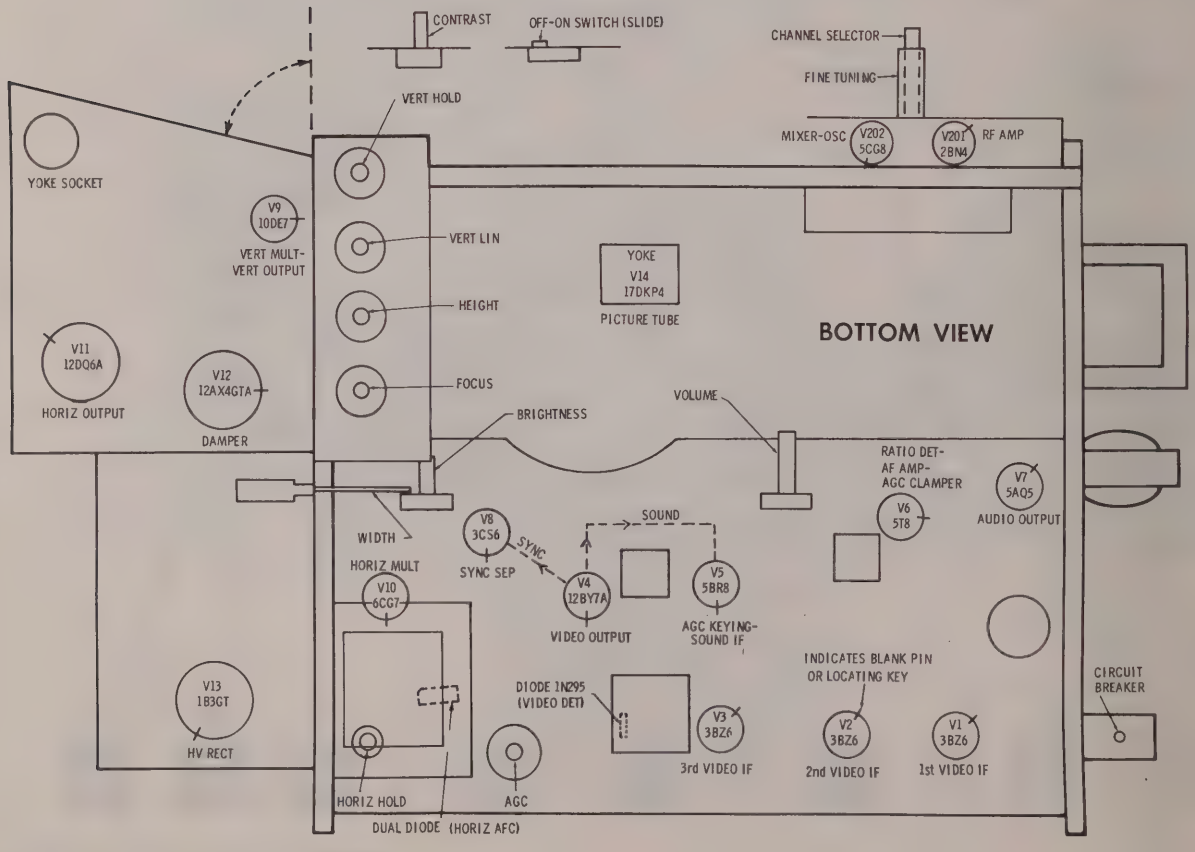
TUNER 323-0100 (54-89421-1)

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	325K	47Ω	11Ω	9.5Ω	†2000Ω	†2000Ω	0Ω		
V2	3BZ6	.1Ω	180Ω	9.5Ω	9Ω	†2000Ω	†2000Ω	0Ω		
V3	3BZ6	.1Ω	180Ω	9Ω	8.5Ω	†4200Ω	†4200Ω	0Ω		
V4	12BY7A	27Ω	3300Ω	0Ω	5Ω	5Ω	3.5Ω	†7000Ω	†1600Ω	0Ω
V5	5BR8	†50K	200K	†60K	3.5Ω	2.5Ω	†56K	†56K	150Ω	10K
V6	5T8	INF	27K	INF	1.5Ω	0Ω	550K	0Ω	10meg	†470K
V7	5AQ5	470K	270Ω	2.5Ω	1.5Ω	†970Ω	†470Ω	470K		
V8	3CS6	†1meg	0Ω	7Ω	6.5Ω	†25K	†7500Ω	1.3meg		
V9	10DE7	†200Ω	•1.2meg	•1.2meg	15Ω	13Ω	•‡2meg	•1.6meg	0Ω	270Ω
V10	6CG7	†10K	2.8meg	1000Ω	7Ω	8.5Ω	†47K	120K	1000Ω	0Ω
V11	12DQ6A	NC	18Ω	TP	†12K	1meg	TP	21Ω	0Ω	TOP CAP ‡14Ω
V12	12AX4GTA	NC	TP	¶850K	NC	†40Ω	NC	18Ω	15Ω	
V13	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡273Ω
V14	17DKP4	6.5Ω	35K	‡750K	•‡1.6meg	NC	NC	•500K	5Ω	
V201	2BN4	0Ω	670K	11Ω	11.5Ω	†2500Ω	0Ω	670K		
V202	5CG8	10K	†15K	0Ω	13Ω	11.5Ω	†2700Ω	†47K	0Ω	330K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 275V SOURCE.
‡ MEASURED FROM PIN 3 OF V12.

NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART

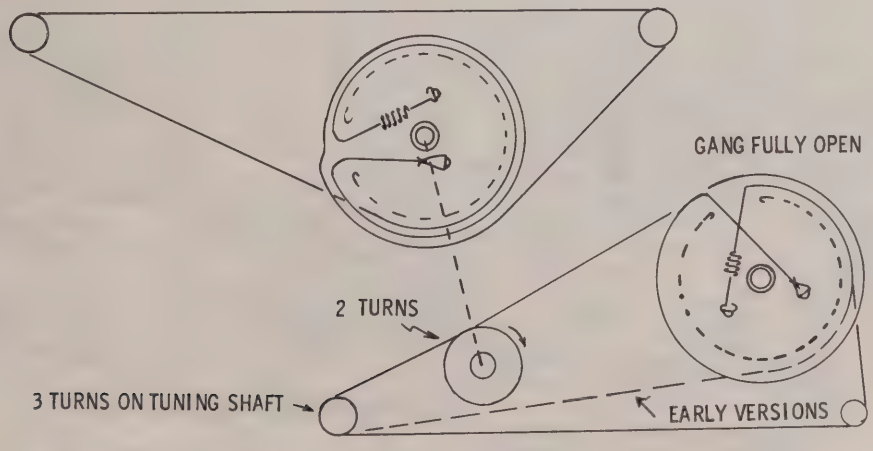
PHOTOFACT* Folder

ADMIRAL MODELS SS642, SS643, SS644, SS649, SS654, SS671, 632, 633, 634, 642, 643, 644, 649, 654, 662, 663, 664, 671 (Ch. 5T4A, 12B1, 12B1A)

TRADE NAME	Admiral Models 632, 633, 634, 642, 643, 644, 654, 671 (Receiver Chassis 12B1) 649 (Receiver Chassis 12B1 or 12B1A) 662, 663, 664 (Receiver Chassis 12B1, Amp. Chassis 5T4A) SS642, SS643, SS644, SS649, SS654, SS671 (Amp. Chassis 5T4A)	
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois	
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer (Models 662, 663, 664 Include Amplifier for Stereo Operation; Other Models may use SS series for Stereo Conversion)	
TUBES	RECEIVER: 12	AMP: 5
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING 94 Watts, .85 Amp. @117 Volts AC (Chassis 12B1) 68 Watts, .65 Amp. @117 Volts AC (Chassis 5T4A)
TUNING RANGE - BROADCAST	530 - 1620KC	FREQ. MOD. 88-108MC

RECORD CHANGERS RC688-16S, RC688-17S, RC688-18S MAY BE USED. FOR SERVICE INFORMATION — SEE SIMILAR ADMIRAL RC607-1 — PHOTOFACT SET 398 FOLDER 7

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

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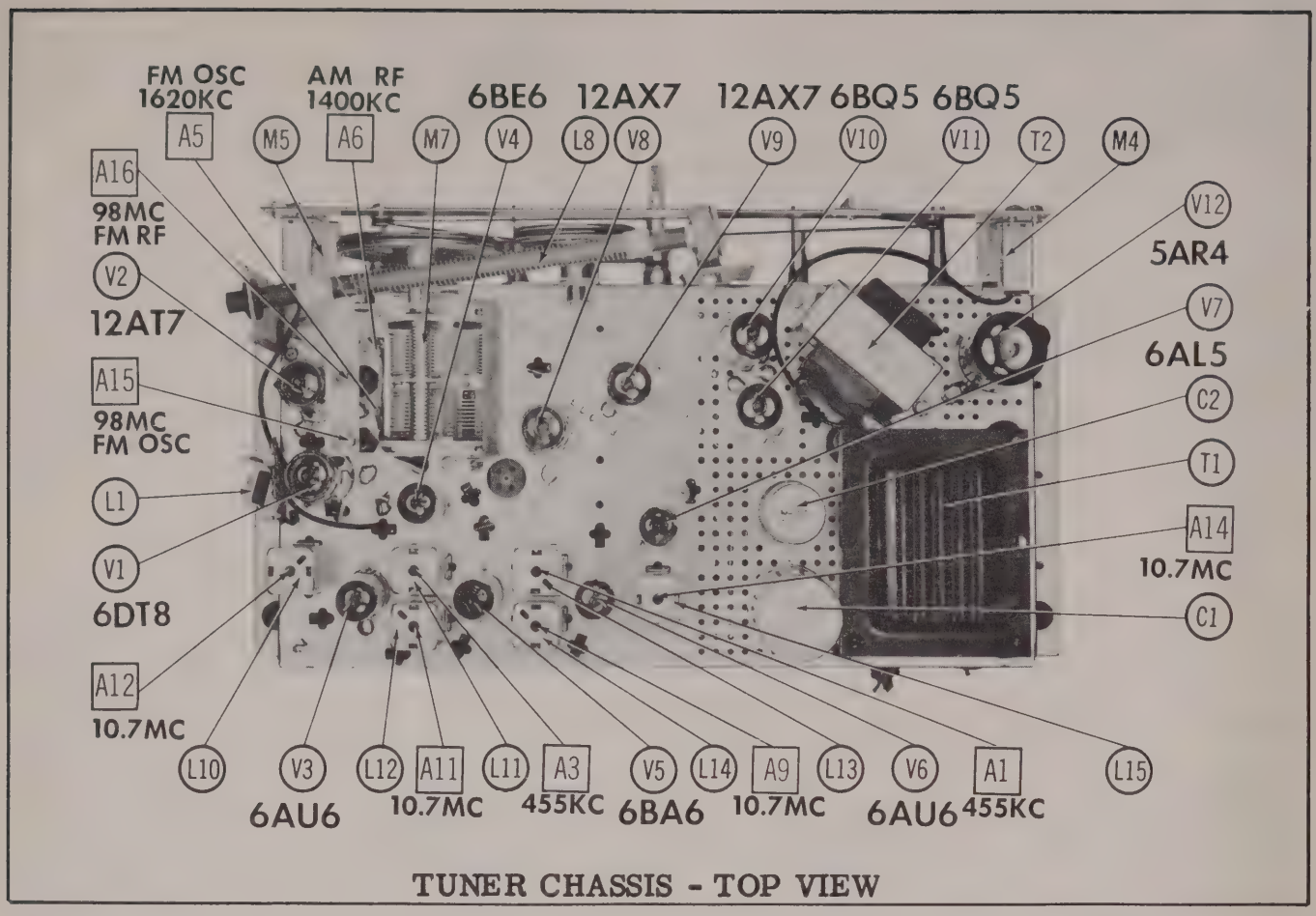
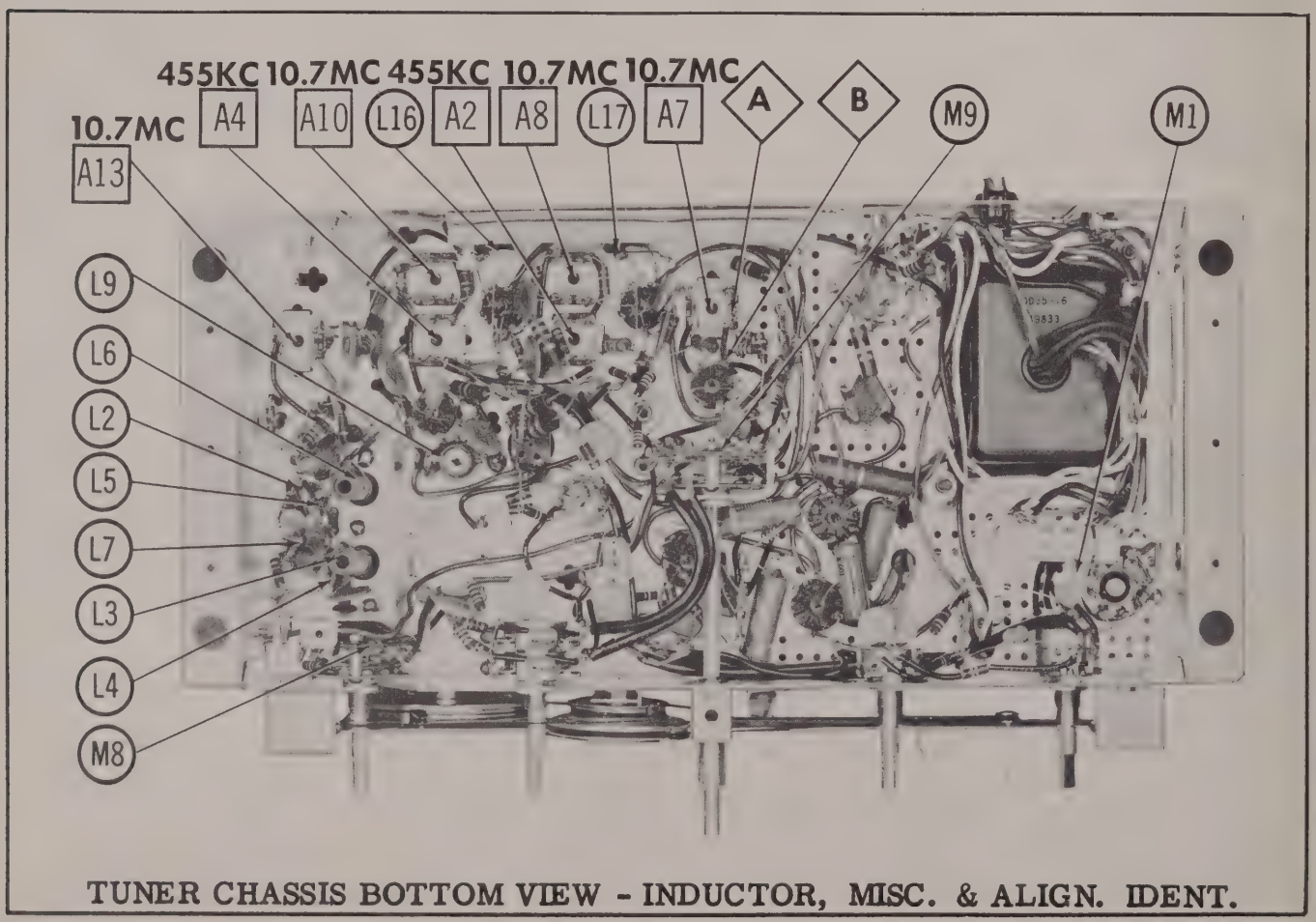
SET 447 FOLDER 4



TUNER CHASSIS - TOP VIEW



TUNER CHASSIS BOTTOM VIEW - INDUCTOR, MISC. & ALIGN. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested alignment tools:
A1 thru A4 and A7 thru A14.....GENERAL CEMENT #5097, 8727
WALSCO #2515
A5 and A6.....GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A15 and A16,.....GENERAL CEMENT #8271, 8274
WALSCO #2524, 2527

AM ALIGNMENT

Turn loudness fully clockwise, bass and treble to mid-range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis.	455KC (400∿ Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Turn loudness to minimum, bass and treble to mid-range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	Two 150Ω Carbon Resistors	Across FM antenna terminals with 150Ω in each lead.	10.7MC (Unmod)	FM	Tuning gang fully open	DC probe thru 10K to point Ⓐ. Common to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 150Ω Carbon Resistors	Across FM antenna terminals with 150Ω in each lead.	10.7MC (450KC Swp	FM	Point of non-interference near high freq. end of dial.	Vert. Amp. to point Ⓐ. Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A14	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Two 150Ω Carbon Resistors	Across FM antenna terminals with 150Ω in each lead.	98MC (Unmod)	FM	98MC	DC probe thru 10K to point Ⓐ. Common to chassis.	A15, A16	Adjust for maximum deflection. After adjusting, cement cores.

FIG. 1

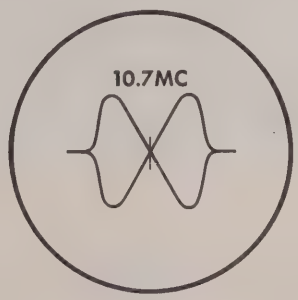
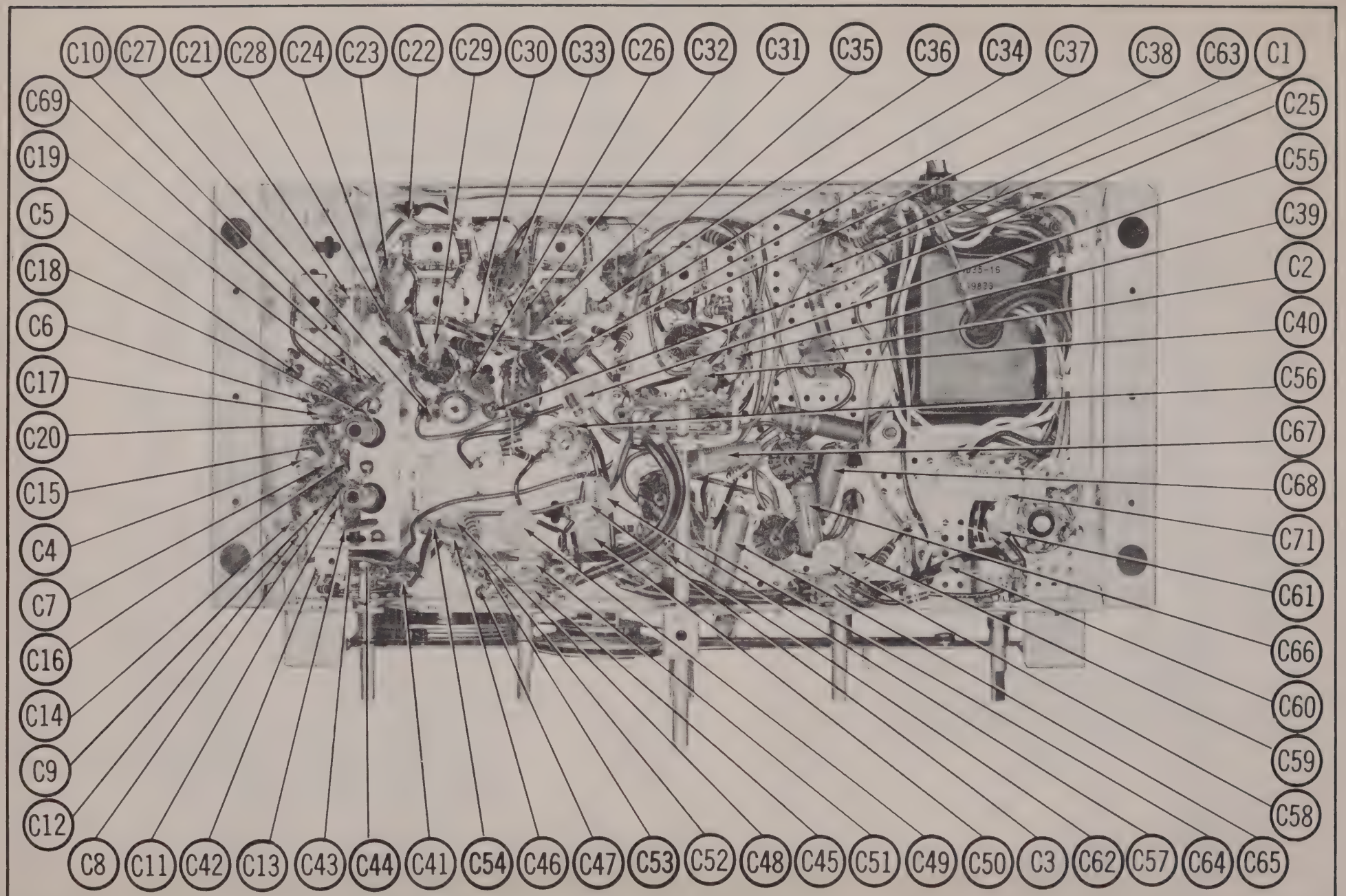


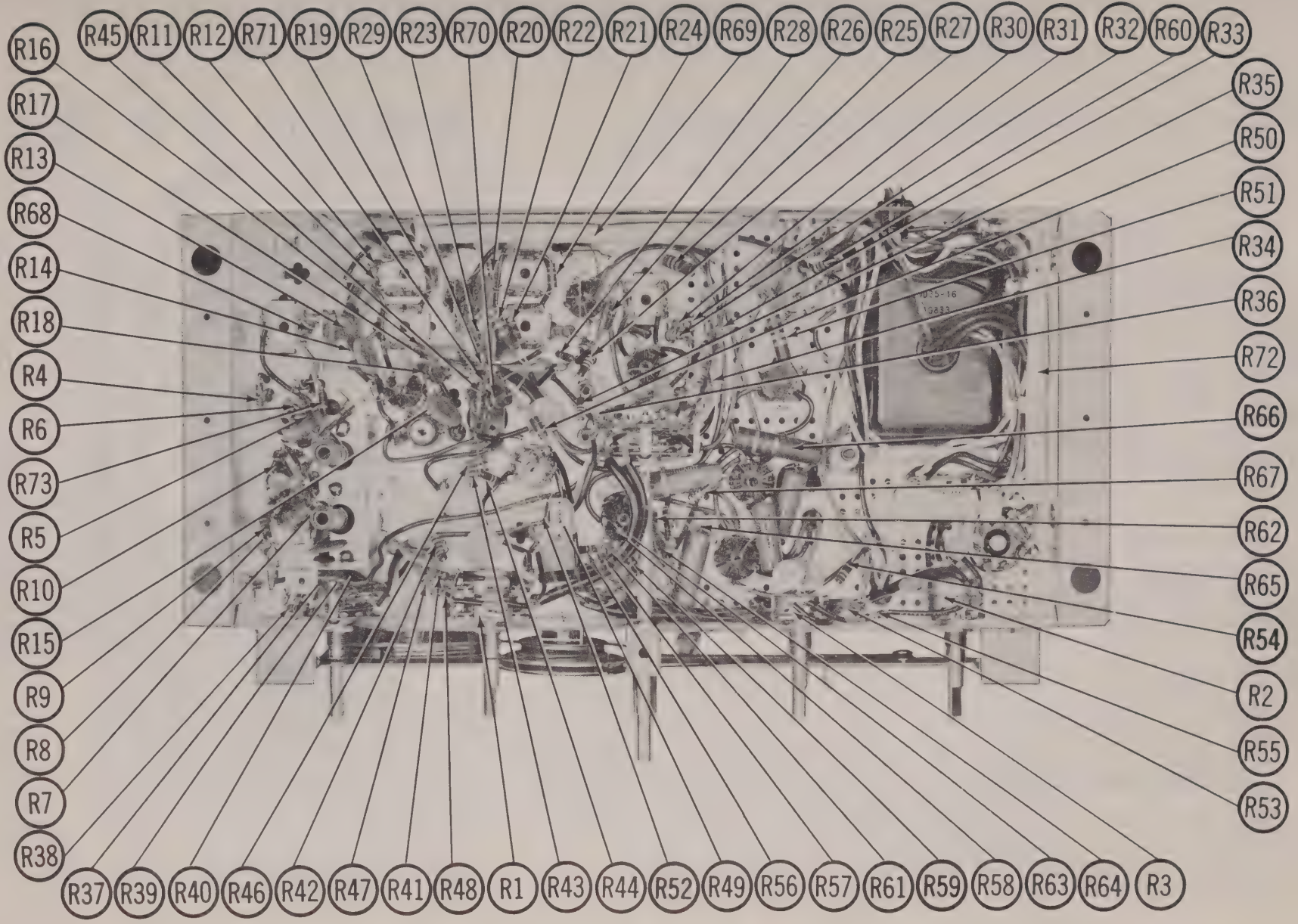
FIG. 2

ADMIRAL MODELS 5S642, 5S643, 5S644, 5S649, 5S654, 5S671, 632, 633, 634, 642, 643, 644, 649, 654, 662, 663, 664, 671 (Ch. 5T4A, 12B1, 12B1A)

FOLDER 4



TUNER CHASSIS BOTTOM VIEW - CAPACITOR IDENT.



TUNER CHASSIS BOTTOM VIEW - RESISTOR IDENT.

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DT8	†1200Ω	68K	1500Ω	.1Ω	0Ω	†1200Ω	0Ω	68Ω	0Ω
V2	12AT7	†1200Ω	10K	.1Ω	0Ω	0Ω	†1200Ω	470K *1.7meg	560Ω	.1Ω
V3	6AU6	.2Ω	0Ω	0Ω	.1Ω	†1200Ω	†40K	150Ω		
V4	6BE6	◓ 22K	◓ .7Ω	.1Ω	0Ω	†◓2100Ω	† ◓23K	◓ 1.5meg		
V5	6BA6	.7Ω	0Ω	0Ω	.1Ω	†1200Ω	†34K	68Ω		
V6	6AU6	350K	0Ω	0Ω	.1Ω	†20K	†20K	0Ω		
V7	6AL5	130K	90K	0Ω	.1Ω	0Ω	0Ω	90K		
V8	ECC83 12AX7	†115K	470K	1000Ω	.1Ω	.1Ω	†230K	470K	2200Ω	0Ω
V9	12AX7	300K	1meg	1200Ω	.1Ω	.1Ω	†170K	1.1meg	150K	0Ω
V10	6BQ5	470K	470K	130Ω	.1Ω	0Ω	NC	†345Ω	NC	†125Ω
V11	6BQ5	470K	470K	130Ω	.1Ω	0Ω	NC	†335Ω	NC	†125Ω
V12	GZ34 5AR4	NC	¶	NC	36Ω	NC	33Ω	NC	¶	
V13	6AV6	470K	2200Ω	.1Ω	.1Ω	0Ω	0Ω	††330K		
V14	12AX7	300K	1meg	1200Ω	.1Ω	.1Ω	†170K	1.1meg	150K	.1Ω
V15	6BQ5	470K	470K	130Ω	.1Ω	.1Ω	NC	†320Ω	NC	†130Ω
V16	6BQ5	470K	470K	130Ω	.1Ω	.1Ω	NC	†330Ω	NC	†130Ω
V17	5Y3GT	NC	¶	NC	97Ω	NC	105Ω	NC	¶	

¶ . THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED

◓ MEASURED IN "AM" POSITION

* MEASURED IN "FM-AFC" POSITION

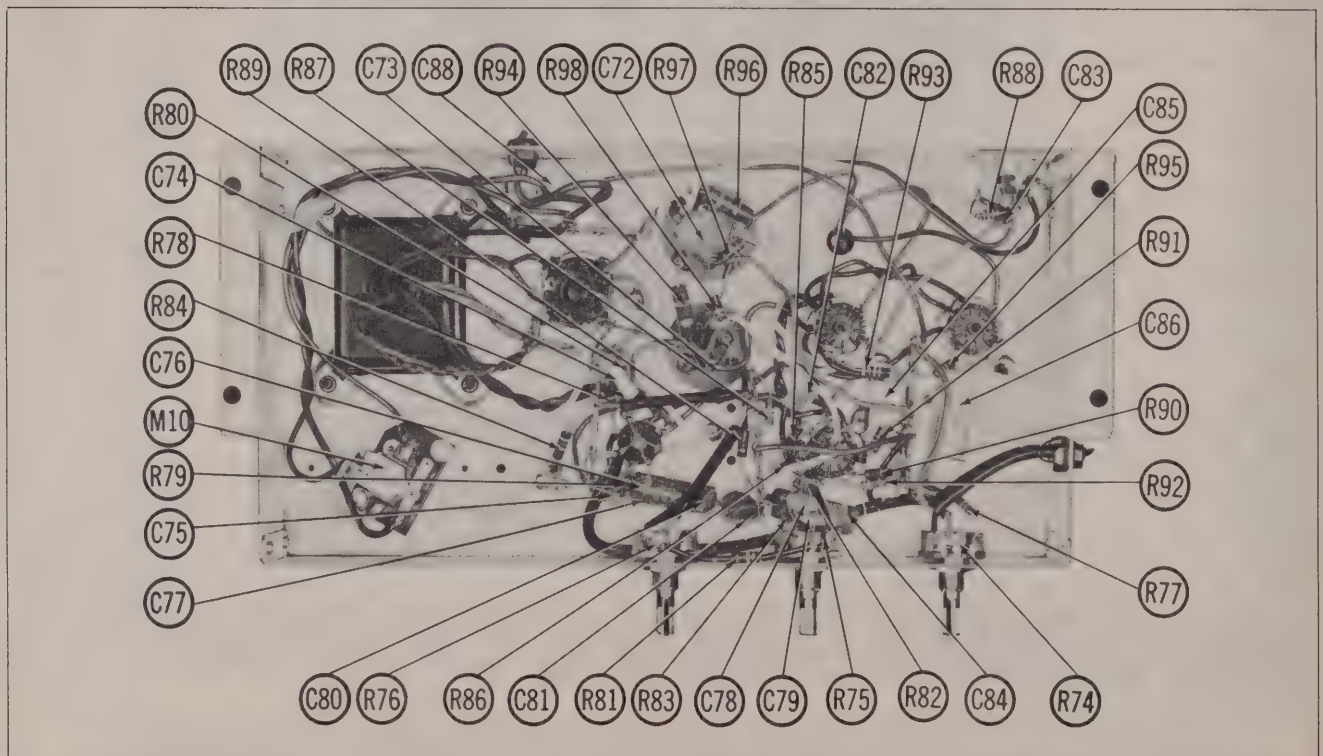
◆ MEASURED FROM PIN 8 OF V9

† MEASURED FROM PIN 8 OF V12

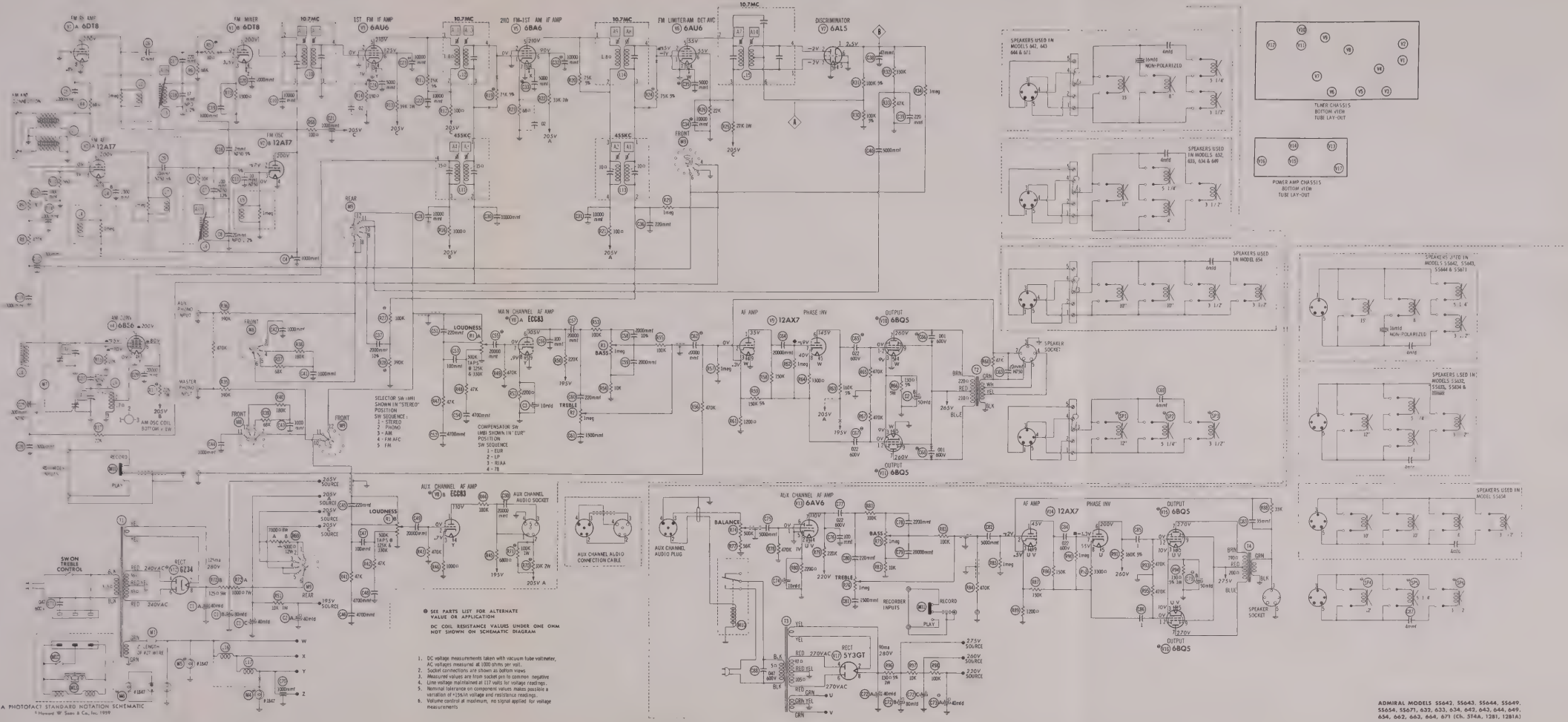
■ MEASURED FROM PIN 8 OF V14

†† MEASURED FROM PIN 8 OF V17

NC NO CONNECTION



AMP CHASSIS—BOTTOM VIEW


FM RF AMP
FM MIXER
1ST FM IF AMP
2ND FM-1ST AM IF AMP
FM LIMITER-RAM DET AVC
DISCRIMINATOR
FM OSC
AM RF AMP
AM OSC
AM MIXER
MAIN CHANNEL AF AMP
AUX CHANNEL AF AMP
PHASE INV
OUTPUT
SPEAKER SOCKET
SELECTOR SW (AM) SHOWN IN "STEREO" POSITION
SW SEQUENCE: 1 - STEREO 2 - PHONO 3 - AM 4 - FM AFC 5 - FM
COMPENSATION SW (AM) SHOWN IN "EUR" POSITION
SW SEQUENCE 1 - EUR 2 - LP 3 - RIAA 4 - 78
SW ON TREBLE CONTROL
AUX CHANNEL AUDIO PLUG
AUX CHANNEL AUDIO CONNECTION CABLE
RECORDER INPUTS
SPEAKERS USED IN MODELS 642, 643 644 & 671
SPEAKERS USED IN MODELS 632, 633, 634 & 649
SPEAKERS USED IN MODEL 654
SPEAKERS USED IN MODELS 5642, 5643, 5644 & 5671
SPEAKERS USED IN MODELS 5632, 5633, 5634 & 5649
SPEAKERS USED IN MODEL 5654
TUNER CHASSIS BOTTOM VIEW TUBE LAY-OUT
POWER AMP CHASSIS BOTTOM VIEW TUBE LAY-OUT

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

ADMIRAL MODELS 5S642, 5S643, 5S644, 5S649, 5S654, 5S671, 632, 633, 634, 642, 643, 644, 649, 654, 662, 663, 664, 671 (Ch. 5T4A, 12B1, 12B1A)

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. -FM Mixer	6DT8	
V2	FM Osc. -FM AFC	12AT7	
V3	1st FM IF Amplifier	6AU6	
V4	AM Converter	6BE6	
V5	2nd FM-1st AM IF Amp.	6BA6	
V6	FM Limiter-AM Det. -AVC	6AU6	
V7	Discriminator	6AL5	

ITEM No.	USE	TYPE	NOTES
V8	Aux. Channel Amp. - Master Channel Amp.	ECC83/ 12AX7	
V9	Master Channel AF Amp. - Master Channel Phase Inv.	12AX7	
V10	Master Channel Output	6BQ5	①
V11	Master Channel Output	6BQ5	①
V12	Rectifier	GZ34/ 5AR4	

① Some versions may use EL84/6BQ5 in this application

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	● 40	350	67D7-37	AFH3-29-50	D0034	FP375.5	TMQ-120	TVL-3724.7	
B	■ 80	350							
C	▲ 40	350							
C2A	■ 40	300	67D7-36	AFH3-138	B0652	FP146	TMS-37	TVL-2708.8	
B	▲ 50	50				TC39	TD-50-50		
C3	10	6	67B35-7	PWE6010	NLW10-6	TT6X10	ML10-6	TE-1087	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4A	1000				BPD-001	DD-102	BYC6DD1	B-210		
B	1000			65A17-3	BPD-001	DD-102		B-210	5HK-2D1	
C5	1000			65D10-6	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C6	47			65D6-79	SI 47	D6-470	L10Q47	UC-5447	5GA-Q47	
C7	100		N750 10%	65D6-19	N750-DI 100	TCN-100	C10T1U	CN7-310	5TCU-T1	
C8	20		NPO 1.2%			TCZ-20			5TCC-Q2S1.2%*	
C9	10		N750 5%	65D10-50		TCN-10		CN7-410	5TCU-Q1S 5%*	
C10	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C11	10		N750 5%	65D10-50		TCN-10		CN7-410	5TCU-Q1S 5%*	
C12	1000			65B26-5	EF-001	MFT-1000			503C-D1	
C13	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C14	1000			65B26-5	EF-001	MFT-1000			503C-D1	
C15	1000			65D10-6	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C16	2		N750 5%	65D6-53				CN7-522		
C17	220			65D6-80	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C18	17		NPO 1.2%			TCZ-18		CNO-418		
C19	1000			65D10-6	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C20	1000			65D10-6	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C21	1000			65B26-5	EF-001	MFT-1000			503C-D1	
C22	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C23	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	①
C24	5000			65D10-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	①
C25	1000		N750	65B26-5						
C26	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C27	47		N750 10%		N750-DI 47	TCN-47	C10Q47U	CN7-447	5TCU-Q47S 10%*	
C28	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C29	20000			65D10-28	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C30	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C31	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C32	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	②
C33	5000			65D10-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	②
C34	10000			65D10-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	③
C35	5000			65D10-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	③
C36	220			65D6-80	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C37	2000		10%	65D10-125				JL-220	5HK-D2S 10%*	
C38	47			65D6-79	SI 47	D6-470	L10Q47	UC-5447	5GA-Q47	
C39	220			65D6-80	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C40	5000			65D10-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C41	1000			65D10-53	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C42	1000			65D10-53	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C43	1000			65D10-53	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C44	1000			65D10-53	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C45	220			65D6-80	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C46	4700			65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C47	100			65D6-3	SI 100	D6-101	L10T1	UC-531	5GA-T1	
C48	4700			65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C49	20000			65D10-28	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C50	20000			65D10-28	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C51	220			65D 6-80	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C52	4700			65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C53	100			65D6-3	SI 100	D6-101	L10T1	UC-531	5GA-T1	
C54	4700			65D10-112	BPD-0047	DD-472	BYA10D47M	B-247	5HK-D47	
C55	20000			65D10-1	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	④
C56	100			65D6-3	SI 100	D6-101	L10T1	UC-531	5GA-T1	
C57	20000			65D10-28	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C58	2000		10%	65D10-125	DI-2000			JL-220	5HK-D2S 10%*	
C59	2000			65D6-137	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C60	220			65D6-80	SI 220	D6-221	L10T22	UC-5322	5GA-T22	
C61	1500			65D10-103	BPD-0015	DD-152	BYA10D15	B-215	5HK-D15	
C62	20000			65D10-1	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	④
C63	20		N750		N750-DI 20	TCN-20	C10Q2U	CN7-418	5TCU-Q2	
C64	20000			65D10-28	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C65	.022	600			P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	⑤
C66	.001	600			P688N-001	DD-102	CUB6D1	GEM-621	6TM-D1	⑥
C67	.022	600			P688N-022	DD-203	CUB6S22	GEM-6222	6TM-S22	⑤
C68	.001	600			P688N-001	DD-102	CUB6D1	GEM-621	6TM-D1	⑥
C69	4.0	10		64B13-5						
C70	1000			65B26-5	EF-001	MFT-1000			503C-D1	
C71	.047	600		63B12-1	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

① C23 and C24 may be a dual 4000mmf in this application (Part #65A17-1)
② C32 and C33 may be a dual 4000mmf in this application (Part #65A17-1)
③ C34 and C35 may be a dual 4000mmf in this application (Part #65A17-1)
④ Some versions may use 5000mmf in this application (Part #65D10-1)
⑤ Some versions may use .1mfd in this application (Part #64C25-32)
⑥ Not used in some versions

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	75B46-1				† UE3955	Loudness, Master Channel ①
B	500K	½						Loudness, Aux. Channel ①
R2A	1meg	½	75D1-115	B-70	A47-1meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power On-Off
R3A	1meg	½	75D1-114	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

† "STA-LOC" equivalent: FA55DT334, RU55DT334, CS3500
① Taps @ 125K and 330K.

TUNER PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R4	68Ω		60B8-680	
R5	10Ω		60B8-100	Note 1
R6	68K		60B8-683	
R7	10K		60B8-103	
R8	470K		60B8-474	
R9	100Ω		60B8-101	
R10	560Ω		60B8-561	
R11	75K 5%		60B7-753	
R12	100Ω		60B8-101	
R13	39K	1	60B14-393	
R14	150Ω		60B8-151	
R15	22K		60B8-223	
R16	1000Ω		60B8-102	
R17	22K		60B8-223	
R18	22K	1	60B14-223	Note 2
R19	75K 5%		60B7-753	Note 1
R20	75K 5%		60B7-753	
R21	100Ω		60B8-101	
R22	33K	1	60B14-333	
R23	68Ω		60B8-680	
R24	75K 5%		60B7-753	Note 1
R25	27K	1	60B14-273	
R26	22K		60B8-223	
R27	100K		60B8-104	Note 4
R28	390K		60B8-394	Note 5
R29	1meg		60B8-105	
R30	100K 5%		60B7-104	
R31	100K 5%		60B7-104	
R32	330K		60B8-334	
R33	47K		60B8-473	
R34	1meg		60B8-105	
R35	390K		60B8-394	
R36	390K		60B8-394	
R37	68K		60B8-683	
R38	180K		60B8-184	
R39	68K		60B8-683	
R40	180K		60B8-184	
R41	47K		60B8-473	
R42	47K		60B8-473	
R43	470K		60B8-474	
R44	100K		60B8-104	
R45	6800Ω		60B8-682	
R46	1000Ω		60B8-102	
R47	47K		60B8-473	
R48	47K		60B8-473	
R49	470K		60B8-474	
R50	220K		60B8-224	
R51	10K	1	60B14-153	
R52	2200Ω		60B8-222	
R53	100K		60B8-104	
R54	10K		60B8-103	
R55	100K		60B8-104	
R56	470K		60B8-474	
R57	1meg		60B8-105	
R58	150K		60B8-154	
R59	150K 5%		60B7-154	
R60	47K		60B8-473	
R61	1200Ω		60B8-122	
R62	1meg		60B8-105	
R63	160K 5%		60B7-164	
R64	3300Ω		60B8-332	
R65	470K		60B8-474	
R66	130Ω 5%	5	60B19-131	
R67	470K		60B8-474	
R68	100Ω		60B8-101	
R69A	7000Ω	8	61A5-17	
B	5000Ω	12		
R70	33K	2		Note 3
R71	100K	1	60B8-104	Note 1
R72A	1000Ω	7	61A5-18	
B	125Ω	5		
R73	1500Ω		60B8-152	

Note 1. Not used in some versions.
Note 2. Initial production versions use 15K 1W in this application (Part #60B14-123).
Note 3. Some versions may use 39K 2W in this application (Part #60B20-393).
Note 4. Some versions may use 390K in this application (Part #60B8-394).
Note 5. Some versions may use 100K in this application (Part #60B8-104).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ADMIRAL PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.	700B135						
L2	RF Choke	73B31-6						3.3uh on 1meg
L3	FM RF Coil	69B233-2						Includes C18
L4	Fil. Choke	73B31-5	19-1000▲	19-1000▲	BC-561▲	4602▲		luh on 1meg
L5	Cathode Choke	73B31-5	19-1000▲	19-1000▲	BC-561▲	4602▲		luh on 1meg
L6	FM Osc. Coil	69B233-1						Includes C8
L7	RF Choke	73B31-5	19-1000▲	19-1000▲	BC-561▲	4602▲		luh on 1meg
L8	Loopstick	69B229-1	14-9003*	14-9003*				
L9	AM Osc. Coil	69A52-12						
L10	1st FM IF Trans.	72D28-72						
L11	1st AM IF Trans.	72D28-70	16-6758	16-6758	BC-352	12-C1	RF-1	
L12	2nd FM IF Trans.	72D28-68	16-3487	16-3487	FM-254	1463		
L13	2nd AM IF Trans.	72D28-71	16-6758	16-6758	BC-353	12-C2	RF-2	
L14	3rd FM IF Trans.	72D28-68	16-3487	16-3487	FM-254	1463		
L15	Discriminator	72D28-73	17-3494	17-3494	FM-253	1464		
L16	Fil. Choke	73A2-14						1.3uh
L17	Fil. Choke	73A2-14						1.3uh

▲ Parallel with 1meg resistor
* Disregard pri. winding

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V@ .85A	480 VCT @ .125A	5V@ 3A	80D35-16	26R36				26R36	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V@ 4.6A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8600Ω CT	16Ω Taps @ 3-4Ω, 1-2Ω	79D56-11	24S55	A-2904①	AU-609	A-3830	24S55	S-57Z	① Drill new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ADMIRAL PART No. FUSE	ADMIRAL PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	2" of #27 wire							

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ADMIRAL PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M2	409C34-1 ①	*13-TB				① Includes needles. Record changer RC688-18S Part #409B33-2-1 used with changer RC688-17S Part #409B33-1-1 used with changer RC688-16S * Includes needles and mounting mechanism

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ADMIRAL PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3	† 98C95-1 or †♦ 98C95-2	† S69X or †♦ S69XSD or ♦ S69XDD	† W-103STSS* or †♦ W-103STDS*	Record changer EC-688-18S
	† 98C15-101 and † 98C15-100 or ♦ 98C15-102	E98 and E98D or E98X and E98XD	† W-101STS or † W-102STS	Record Changers RC688-17S, RC688-16S

* Includes cartridge † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Lamp	81A1-8	#1847 (Alternate #47)
M5	Lamp	81A1-8	#1847 (Alternate #47)
M6	Lamp	81A1-8	#1847 (Alternate #47) not used in all versions
M7	Tuning Cap.	68B71-1	AM, 2 gang (Ant. 12-356mmf, Osc. 8-104mmf)
M8	Switch	77B86-1	Record Compensator (4 Position, Rotary Wafer Type)
M9	Switch	77B84-1	Selector (5 Position, Rotary Wafer Type)

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V13	Aux. Channel AF Amp.	6AV6	
V14	Aux. Channel AF Amp. - Aux. Channel Phase Inv.	12AX7	

ITEM No.	USE	TYPE	NOTES
V15	Aux. Channel Output	6BQ5	①
V16	Aux. Channel Output	6BQ5	①
V17	Rectifier	5Y3GT	

① Some versions may use EL84/6BQ5 in this application

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C72A	▲ 40	350	67D7-37	AFH3-29-50	D0034	FP375.5	TMQ-120	TVL-3724.7	
B	■ 80	350							
C	▲ 40	350							
C73A	■ 40	300	67C7-36 ①	AFH3-138	B0652	FP146	TMS-37	TVL-2708.8	
B	▲ 50	25				TC29	TD-50-25		
C74	10	6	67B35-7	PWE6010	NLW10-6	TT6X10	ML10-6	TE-1087	

① Alternate Part #67D7-36

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C75	5000			65D10-188	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C76	100			65D6-3	BPD-0001	DD-101	L10T1	CNO-310	5GA-T1	
C77	.022	600		64B8-30	P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C78	2200			65D10-89	BPD-0022	DD-222	BYA10D22	B-222	5HK-D22	
C79	20000			65D10-137	BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C80	220			65D6-80	SI 220	D6-221	L10T22	B-322	5GA-T22	
C81	1500			65D10-103	BPD-0015	DD-152	BYA10D15	B-215	5HK-D15	
C82	5000			65D10-188	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C33	35			65D10-78	BPD-000033	DD-330	L10Q33	CNO-433	5GA-Q33	
C84	.022	600		64B8-30	P688N-022	DD-203	CUB6S22	GEM-6122	6TM-S22	
C85	.1	400		64B8-26	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C86	.1	400		64B8-26	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C87	4.0	10		64B13-5						
C88	.047	600		63B12-1	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R74A	500K	½	75D1-119	B-59	A47-500K-S	Q11-133	U50	Balance
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R75A	1meg	½	75D1-116	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R76A	1meg	½	75D1-116	B-70	A47-1meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R77	56K		60B8-563	
R78	470K		60B8-474	
R79	220K		60B8-224	
R80	2200Ω		60B8-222	
R81	100K		60B8-104	
R82	10K		60B8-103	
R83	100K		60B8-104	
R84	470K		60B8-474	
R85	1meg		60B8-105	
R86	150K		60B8-154	
R87	150K		60B8-154	

ITEM No.	RATING OHMS	RATING WATT	ADMIRAL PART No.	NOTES
R88	33K		60B8-333	
R89	1200Ω		60B8-122	
R90	1meg		60B8-105	
R91	160K 5%		60B8-164	
R92	3300Ω		60B8-332	
R93	470K		60B8-474	
R94	130Ω 5%	1	60B13-131	
R95	470K		60B8-474	
R96	130Ω 5%	1	60B13-131	
R97	10K		60B8-103	
R98	100K		60B8-104	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	RATING SEC. 4	RATING SEC. 5	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	117V ⓐ .65A	540 VCT ⓐ .090A	5V ⓐ 2A	6.3 VCT ⓐ 1.5A			80C66-1 ①				PC8405		

① Alternate Part #80B66-1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	8000Ω CT	3-4Ω	79D56-13	24S55	A-2904①	AU-609	A-3830	24S55	S-57Z	① Drill new mounting hole

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	3-4Ω	78C153-1 ①	12A6A	① Models 632, 633, 634, 649, SS649, 662, 663, 664
SP2	5 1/4"	PM	14-16Ω	78C150-3 ②	52A21Z14	② Models 662, 663, 664
SP3	3½"	PM	3-4Ω	78C148-1 ③	3A15TZ4.4	③ Models 632, 633, 634, 649, 654, SS649, SS654, 662,663,664
SP4	12"	PM	3-4Ω	78C153-1 ②	12A6A	④ Models 642, 643, 644, 671, SS642, SS643, SS644, SS671
SP5	5 1/4"	PM	14-16Ω	78C150-3 ②	52A21Z14	⑤ Two used in Models 654, SS654
SP6	3½"	PM	3-4Ω	78C148-1 ②	3A15TZ4.4	⑥ Models 671, SS642, SS643, SS644, SS649, SS671
	15"	PM	3-4Ω	78C154-1 ④		⑦ Models 632, 633, 634, 642, 643, 644, 649
	10"	PM	6-8Ω	78C152-1 ⑤		⑧ Models 632, 633, 634, 649, SS649
	8"	PM	6-8Ω	78C151-1 ④		
	5 1/4"	PM	3-4Ω	78C150-1 ⑥		
	5 1/4"	PM	6-8Ω	78C150-2 ⑦		
	4"	PM	6-8Ω	78C149-1 ⑧		
	4"	PM	14-16Ω	78C149-2 ⑤		
	3½"	PM	3-4Ω	78C148-2 ④		

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M10	Relay	83B22-1	Power, DPST
M11	Switch	77A20-3	Record-Play (Rotary Wafer Type)
M12	Switch	408A1	On-Off-Reject, Includes Cover
M13	Motor	407D29	4 Speed

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	33C299-1	Tuning, Models 632, 633, 634, 642, 643, 644
Knob	33B299-1	Tuning, Models 649, 654, 662, 663, 664, 671
Knob	33C254-5	Volume-On-Off, Treble, Bass, Loudness, Record Compensator
Knob	33C254-17	Selector
Knob	403A63-4	Control, Record Changer
Knob	33C254-13	Balance, (Auxiliary Chassis)
Knob	33C254-14	Bass (Auxiliary Chassis)
Knob	33C254-15	Treble (Auxiliary Chassis)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

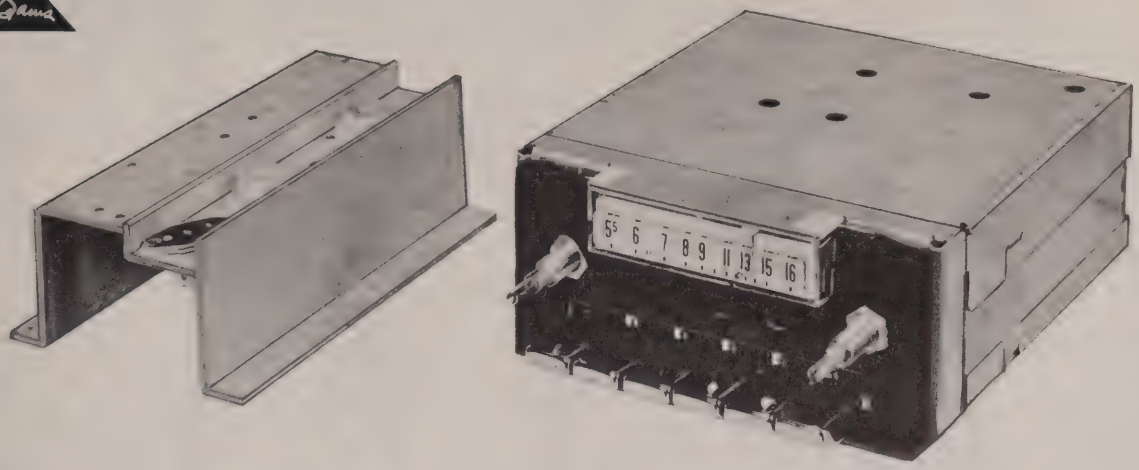
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER

FORD MODEL 94MS (B9SF-18805-B)

FORD MODEL
94MS (B9SF-18805-B)



TRADE NAME	Ford Model 94MS (B9SF-18805-B) (RF-IF Unit B9SF-18A801-B, Output Unit B9SF-19061-A) For 1959
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois Thunderbird Automobiles
TYPE SET	Battery Operated 4 Tube Custom Built AM Automobile Receiver With Transistorized Output
POWER SUPPLY	12 Volt Storage Battery
RATING	2 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	535 - 1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The top and bottom covers should be on receiver during alignment.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Suggested Alignment Tools:
A1 thru A4..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A8, A9, A10..... GENERAL CEMENT #9050L, 9150
WALSCO #2521

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to antenna receptacle. Low side to chassis.	262.5KC (400% Mod.)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	High side thru dummy to antenna receptacle.	1610KC	"	"	A5, A6, A7	"
	Step 3 is unnecessary unless tuner has been tampered with or associated components have been replaced. Back tuning cores 1/4" out of coils. Repeat step 2.						
3.	Fig. 1	High side thru dummy to antenna receptacle.	1180KC	High frequency end stop	Across voice coil	A8, A9, A10	Adjust for maximum output. Repeat steps 2 and 3 until no further improvement is noted. Cement cores.
4.	"	"	600KC at 5 microvolts	Tune to 600KC signal	"	R2	Adjust for 1.79 Volts output.
5.	With radio installed in car and antenna fully extended, tune in a weak station near 1200KC and adjust A7 for maximum output.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton out.
2. Tune manually to desired station.
3. Press button in firmly.
4. Repeat for remaining buttons.

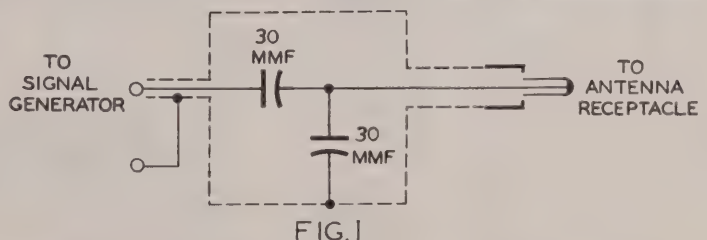


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12AF6	
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	
V4	Det. - AVC - AF Amp.	12AE6A	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N573	Driver			2N573		PNP
X2	2N176	Output	2N155	2N176		2N176	PNP Note 1
X3	2N176	Output	2N155	2N176		2N176	PNP Note 1

Note 1. When replacing, coat both sides of insulator with DC-4 grease (Part #11M490487) or equivalent.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■500	16	23B539261	AFH2-02-10	B0045	WP200. 5		TVL-2175	
B	▲100	16							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	20-180			20B560719						
C3	150		N750 10%	21R121228	N750-DI 150	DTN-150	C10T15U	CN7-315	5TCU-T15S 10%*	
C4	22		N150 10%	21R120539						
C5	.1	200		8K129314	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C6	75-380			20K511136						
C7	22		N150 10%	21R120539						
C8	400-520			20K560628						
C9	47		N750 5%	21R125783		DTN-47	C10Q47U	CN7-447	5TCU-Q47S 5%*	
C10	47		N750 10%	21R114207	N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47S 10%*	
C11	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C12	27		N150 10%	21R119896						
C13	1500			21R125986	BPD-0015	DD-152	BYA10D15	B-215	5HK-D15	
C14	1000			21R410127	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C15	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C16	5000			21R128634	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C17	220			21R410115	BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C18	220			21R410115	BPD-00022	DD-221	L10T22	B-322	5GA-T22	

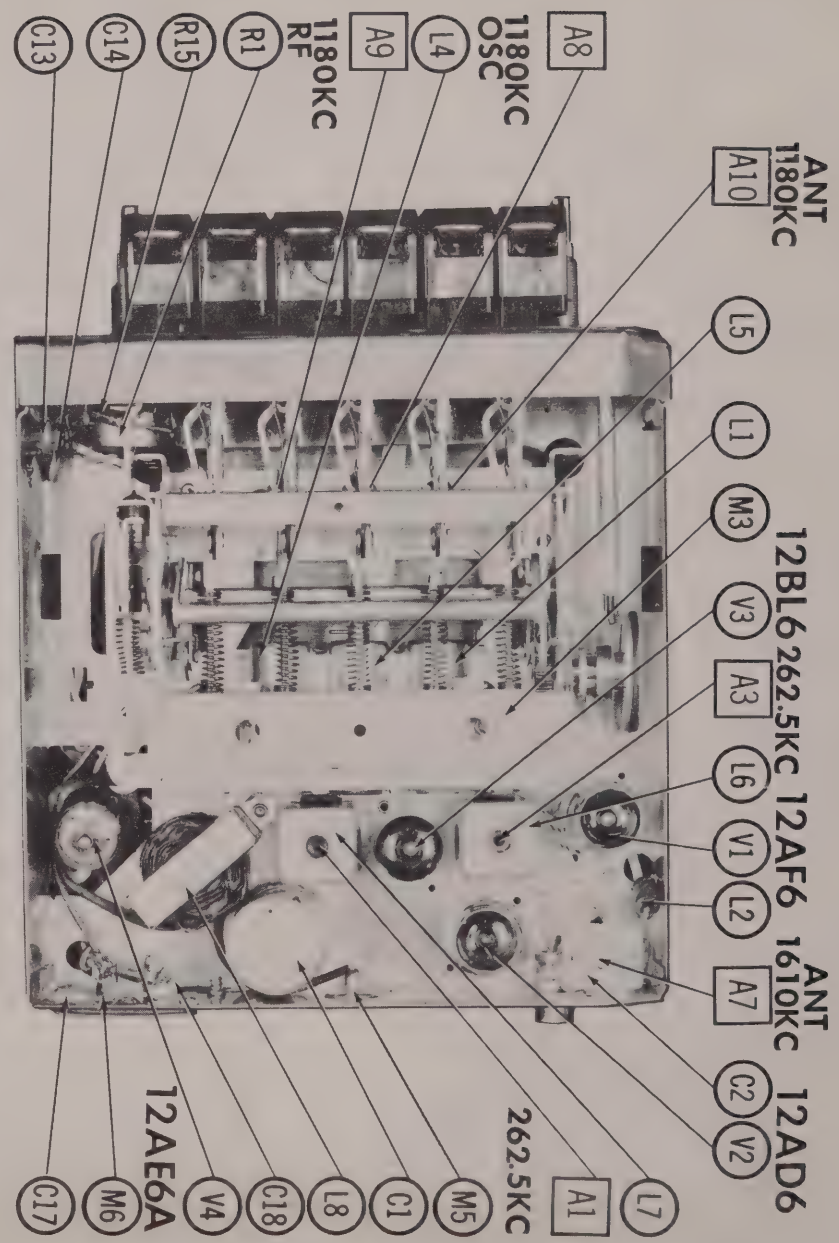
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4meg							Tone
B	1. 3meg							Volume, Tap ⓐ 750K ①
R2	1000Ω	1(WW)	18K732740		39-1000			Sensitivity
R3	400Ω	1(WW)	18B541877					Balance, Stops at 130Ω on each end

① Some versions may use 1meg tapped at 500K in this application (Part #18B562150).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R4	3.3meg		6K119407	
R5	22meg		6R118247	
R6	1.5meg		6R6460	
R7	1500Ω		6K127513	
R8	4700Ω		6K121847	
R9	1meg		6K124494	
R10	3.9meg		6R490110	
R11	2.2meg		6R3927	
R12	33K		6K121704	
R13	8.2meg		6R5585	

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R14	47K		6K121687	
R15	82K		6K125179	
R16	10meg		6K119408	
R17	3900Ω		6K121931	
R18	220Ω		6K127099	
R19	330Ω		6K127940	
R20	10Ω Cold		6K540634	
R21	.16Ω Cold		17K561999	
R22	10Ω Cold		6K540634	
R23	.16Ω Cold		17K561999	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Tuning Coil	24C535458 †						† Part of M3
L2	Ant. Coil	24A538910						
L3	RF Choke	24K560753	19-3075	19-3075	TV-186	6172	VP-2	67uh
L4	RF Tuning Coil	24C535459 †						
L5	Osc. Coil	24C535456 †						
L6	Input IF	24K562152	16-6752	16-6752	BC-350	12-H2	RF-3	
L7	Output IF	24K562151	16-6754	16-6754	BC-354	12-H6		

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L8	2A	.3Ω	.004 Hy.	25K560710						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.1	TURNS RATIO SEC.2	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	8.5	: 1			25C562133					
	8.5		SEC.2 : 1							

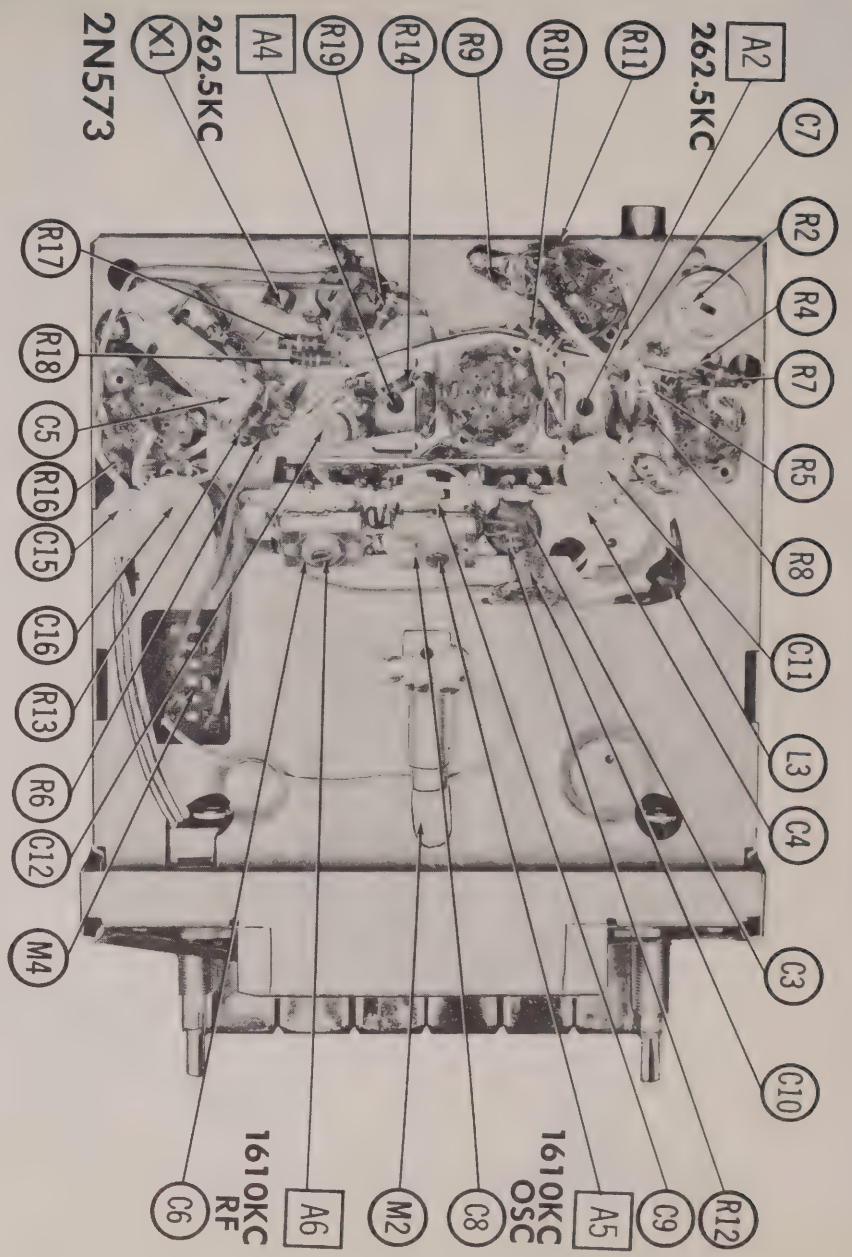
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	30Ω CT	3-4Ω Tap @ 1Ω	25C562122							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	QUAM PART No.	NOTES
SP1	6" x 9"	PM	3-4Ω	50D542405		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	7AG	7½A 32V	65R122346	9K561110	30707.5 (7AG 7½A 32V)	155009	SFE 7½	HDH

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R533821	#1891
M3	Tuner	77D560626	AF-229, Complete, Less Manual Tuning Shaft
M4	Switch	40A560051	Power On-Off (DPST, Slide Type)
M5	Spark Plate	21A560232	(Feed Thru Type)
M6	Spark Plate	21A560232	(Feed Thru Type)

CABINETS & CABINET PARTS

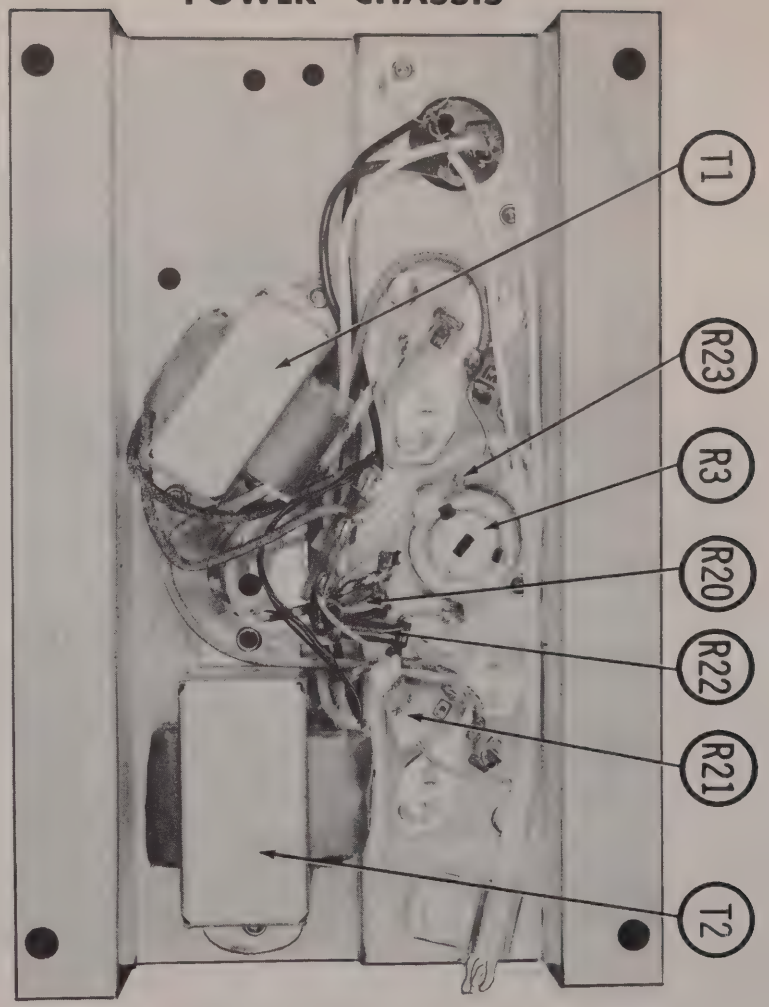
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

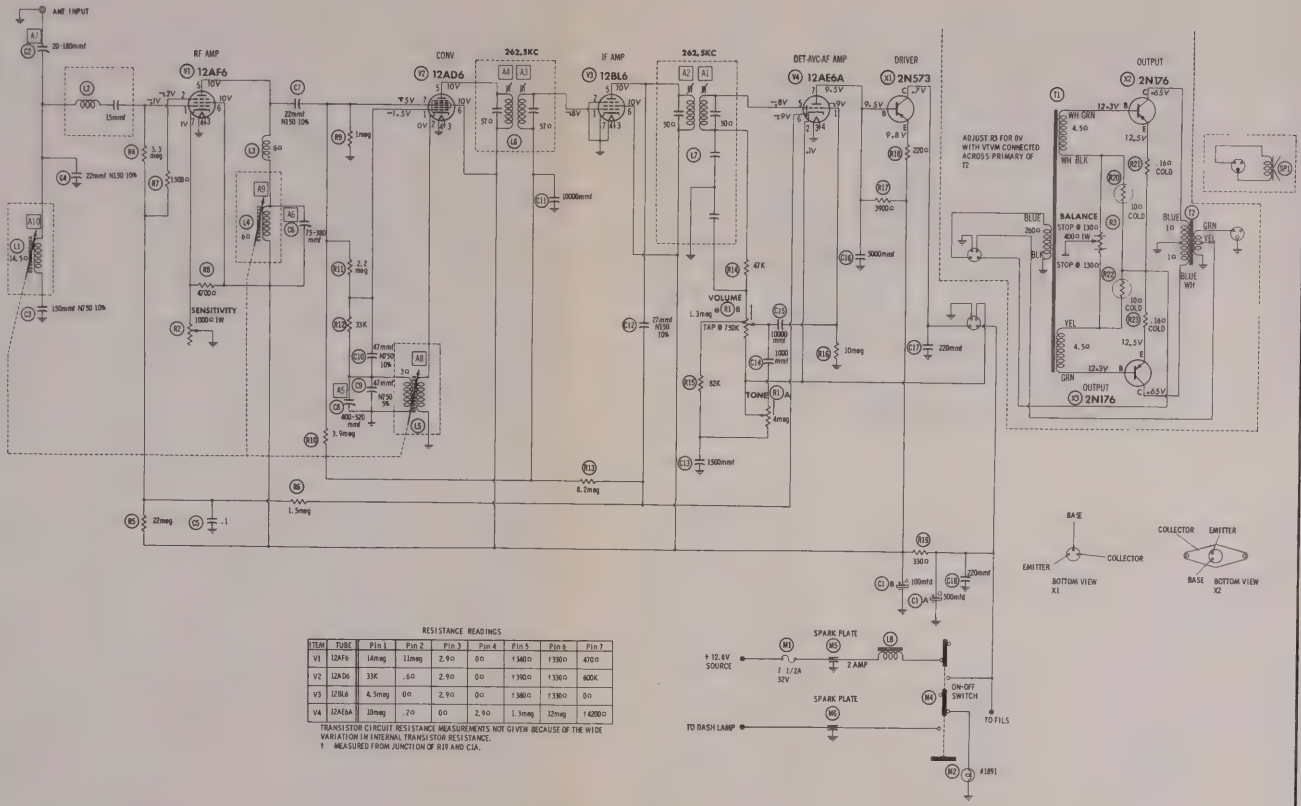
NAME	PART NO.	DESCRIPTION
Knob	36K561365	Tuning, Volume
Knob	36B560029	Tone, Dummy
Pushbutton	38B560075	Station (5 used)
Pushbutton	38K560076	Off
Cover	15C560003	Top
Cover	15C560000	Bottom
Pointer	52B560619	
Dial Scale	34K561366	
Dial Scale	64K561362	Background

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

POWER CHASSIS





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AF6	14meg	11meg	2.9Ω	0Ω	†360Ω	†330Ω	410Ω
V2	12AD6	33K	.6Ω	2.9Ω	0Ω	†390Ω	†330Ω	600K
V3	12BL6	4.5meg	0Ω	2.9Ω	0Ω	†380Ω	†330Ω	0Ω
V4	12AE6A	10meg	.2Ω	0Ω	2.9Ω	1.5meg	12meg	†4200Ω

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
† MEASURED FROM JUNCTION OF R10 AND C1A.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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FORD MODEL 94MS (B9SF-18805-B)

PHOTOFACT* Folder with CIRCUITRACE*
EIA MEMBER

GENERAL ELECTRIC MODELS P755A, P805, P806

GENERAL ELECTRIC MODELS P755A, P805, P806

TRADE NAME	General Electric Models P755A, P805, P806
MANUFACTURER	General Electric Co., Products Service, Radio Receiver Dept., 869 Broad St., Utica, N. Y.
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	9 Volts DC
RATING	26MA @ 9 Volts DC
TUNING RANGE—BROADCAST	540 - 1620KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3..... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544
A4, A5..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	"	"	A4	"
3.		"	1500KC	Tune to 1500KC signal	"	A5	Adjust for maximum output while rocking tuning gang.

DISASSEMBLY

MODEL P755A

1. Remove screw from cabinet back.
2. Remove cabinet back by twisting coin inserted in slot in cabinet bottom.
3. Remove screw from center of tuning dial. Remove dial.
4. Remove 3 screws behind tuning dial.
5. Remove 3 hex head screws and one nut (bottom center of printed board).
6. Swing circuit board out of cabinet.
7. Remove screw from center of volume knob.
8. Remove pal nut holding volume control to cabinet. Remove control.
9. Remove speaker mounting clips. Remove speaker.

MODELS P805, P806

1. Loosen screw in cabinet back. (Screw is captive and remains with cabinet.)
2. Remove cabinet back by twisting coin inserted in slot in cabinet bottom.
3. Remove screw from center of tuning dial. Remove dial.
4. Remove 3 screws behind tuning dial.
5. Remove 3 hex head screws and one nut (bottom center of printed board).
6. Swing circuit board out of cabinet.
7. Remove screw from center of volume knob.
8. Remove pal nut holding volume control to cabinet. Remove control.
9. Remove speaker mounting clips. Remove speaker.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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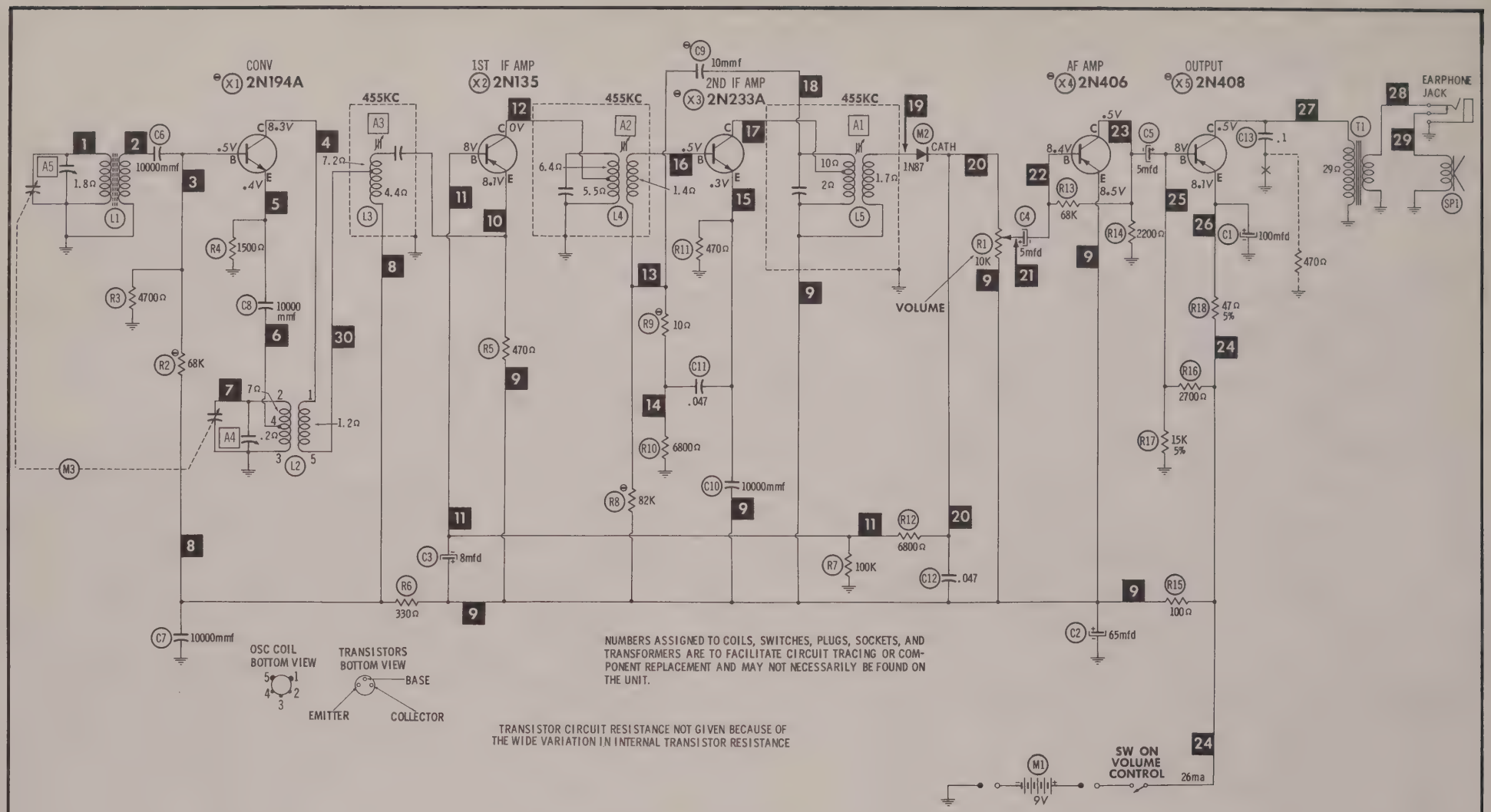
J66

SET 447 FOLDER 6



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

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GENERAL ELECTRIC MODELS P755A, P305, P806

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N194A	Converter				2N194	NPN Note 1
X2	2N135	1st IF Amplifier			2N438	2N139	PNP
X3	2N233A	2nd IF Amplifier				2N233A	NPN Note 2
X4	2N406	AF Amplifier		2N406	2N362	2N406	PNP Note 3
X5	2N408	Output		2N408	2N631	2N408	PNP Note 4

Note 1. Models P805 and P806 use 2N169 or 2N218 (1297) in this application.
Note 2. Models P805 and P806 use 2N169, 2N293 or 2N314 in this application.
Note 3. Models P805 and P806 use 2N192 or 2N324 in this application.
Note 4. Models P805 and P806 use 2N241A, 2N270 or 2N321 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	G. E. PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	15	RS-1591	SRE15V100	NL100-10	TT15X100	ML100-15	TE-1162	
C2	65	15	RS-1590	SRE25V50	NLW75-10	PETA1575	ML50-15	TE-1161	
C3	8	10	RS-1592	PWE10008	NLW8-10	TT12X10	ML8-15	TE-1127. 3	
C4	5	12	RS-1593	XPP-12005	NLW5-15	TT12X5	ML5-15	TE-1127	
C5	5	12	RS-1593	XPP-12005	NLW5-15	TT12X5	ML5-15	TE-1127	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	G. E. PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C8	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C9	10				SI 10	D6-100	L10Q1	CNO-410	5TCC-Q1	①
C10	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C11	.047	50			P285N-047	DDA-503	STM1S47	GEM-4147	2TM-S47	
C12	.047	50			P285N-047	DDA-503	STM1S47	GEM-4147	2TM-S47	
C13	.1	50			P285N-1	DDA-104	STM1P1	GEM-201	2TM-P1	

① Not used when X3 is 2N169 in Model P805 or P806.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	G. E. PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	10K	½	RS-1587					Volume and Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		G. E. PART No.	NOTES
	OHMS	WATT		
R2	68K			Note 1
R3	4700Ω			
R4	1500Ω			
R5	470Ω			
R6	330Ω			
R7	100K			
R8	82K			Note 2
R9	10Ω			Note 2
R10	6800Ω			

ITEM No.	RATING		G. E. PART No.	NOTES
	OHMS	WATT		
R11	470Ω			
R12	6800Ω			
R13	68K			
R14	2200Ω			
R15	100Ω			
R16	2700Ω			
R17	15K 5%			
R18	47Ω 5%			

Note 1. When X1 is 2N169 in Models P805 or P806, R2 is 82K. When X1 is 2N212 (1297) in Model P805 or P806, R2 is 33K.
Note 2. When X3 is 2N169 in Models P805 or P806, R8 is 47K and R9 is not used.

PRINTED BOARD

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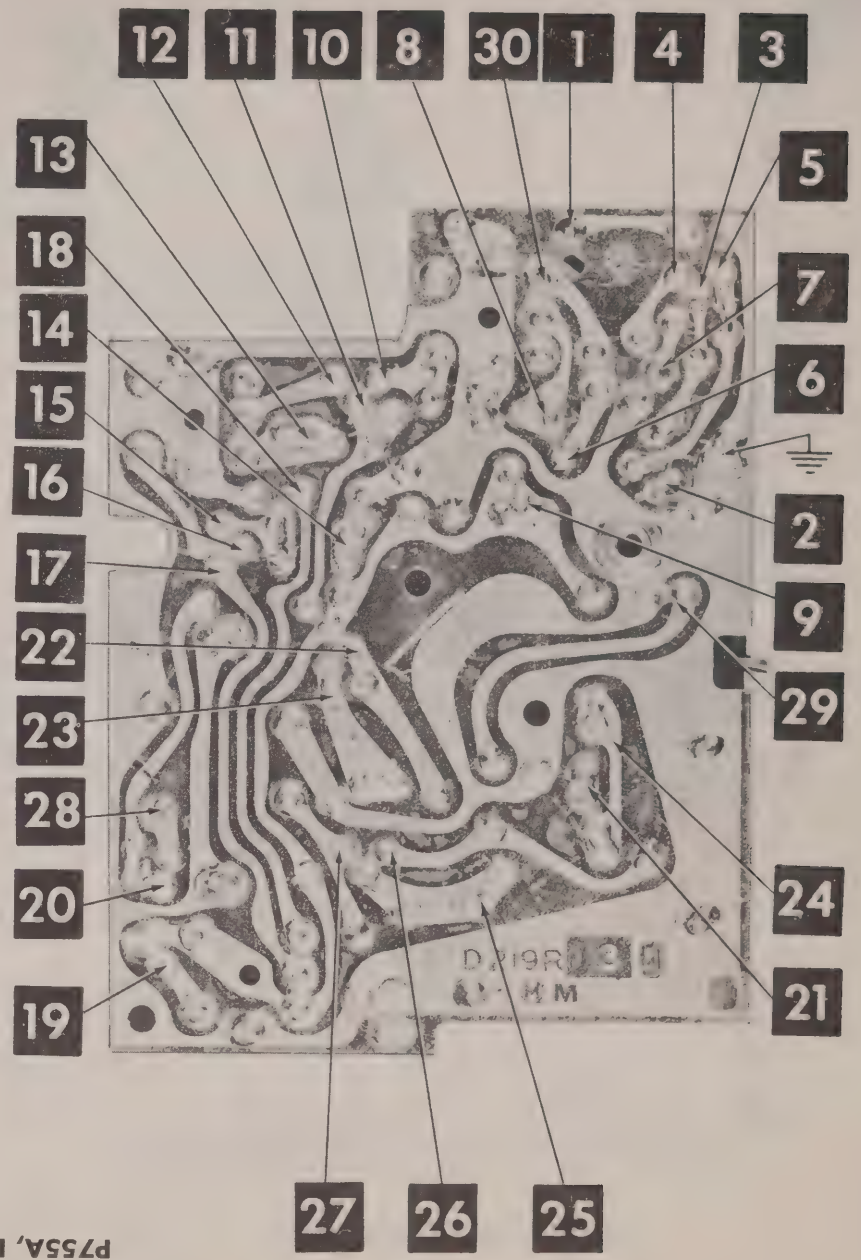


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		G. E. PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	RS-1588	14-9009	14-9009				
L2	Osc. Coil	RS-1585						
L3	1st IF Trans.	RS-1582						
L4	2nd IF Trans.	RS-1583						
L5	3rd IF Trans.	RS-1584	16-9012	16-9012				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	G. E. PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	320Ω	3-4Ω	RS-1581							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	G. E. PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	RB-1083	3A05	

BATTERIES

ITEM No.	VOLTAGE	G.E. PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			M6		266		M1605	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		G. E. PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N87	RED-001	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M3	Tuning Cap.	RS-1586	2 Gang, Ant. 10-200mmf, Osc. 8-83mmf
	Printed Board	D219R3	
	Earphone Ass'y.	RS-1019	

CABINETS & CABINET PARTS

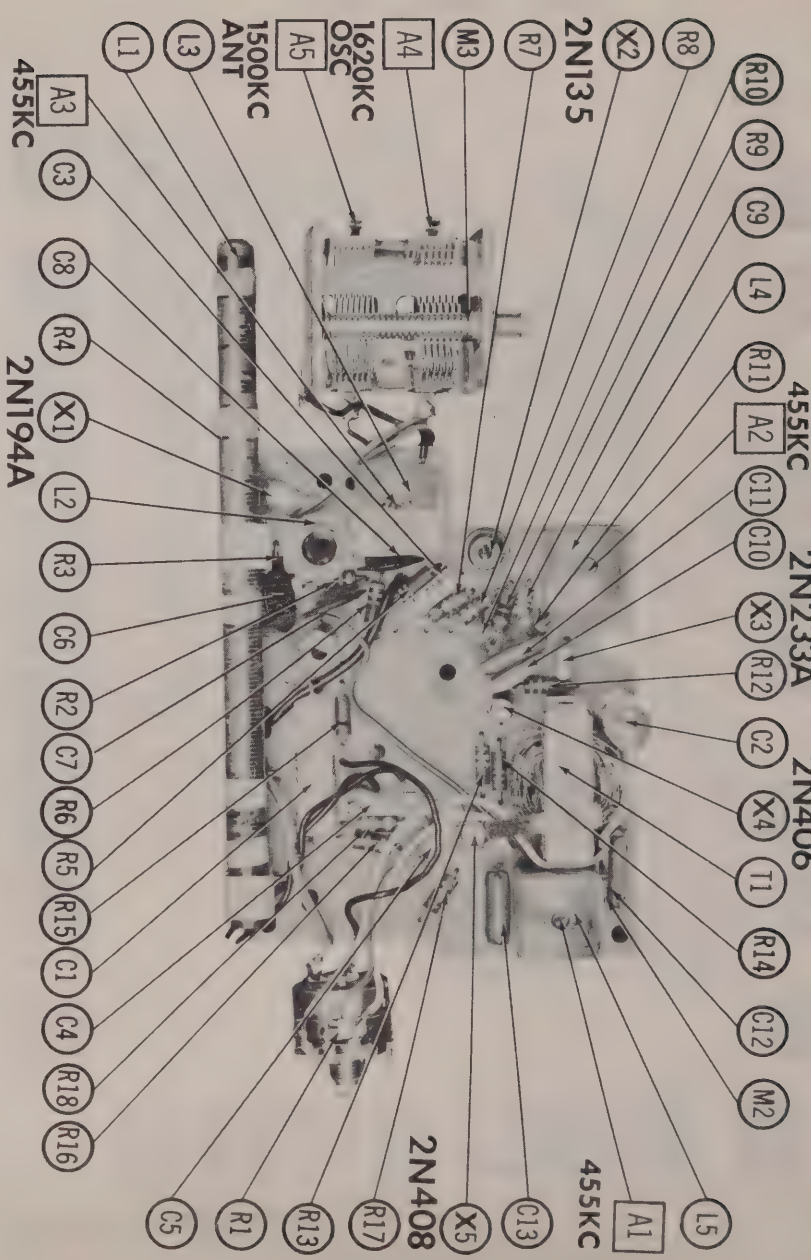
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	RS-1573	Tuning
Knob	RS-1576	Volume On-Off
Cabinet	RB-1082	Front, Includes Back, Grille, Insert, Model P755A
Cabinet	RB-1095	Front, Includes Back, Grille, Insert, Model P805
Cabinet	RB-1096	Front, Includes Back, Grille, Insert, Model P806
Handle	RS-1825	Model P805
Handle	RS-1826	Model P806

WIRING DATA

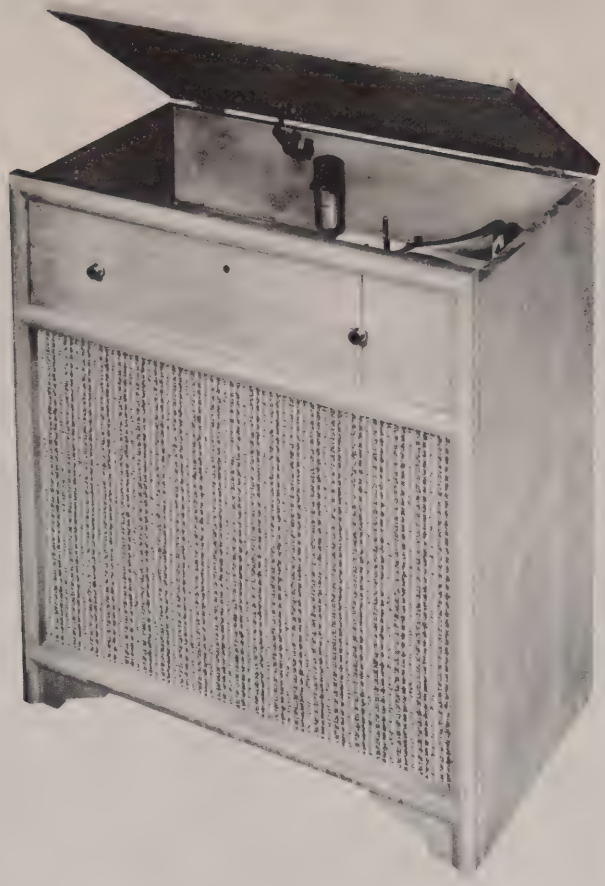
General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW



PHOTOFACT* Folder

HOFFMAN MODELS B8001, B8005,
M8001, M8005, SP8001, SP8005,
W8001, W8005 (Ch. 1119, 1126)

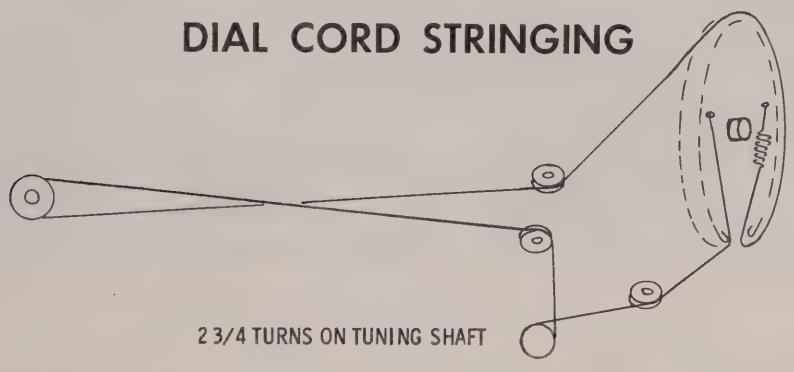


HOFFMAN MODELS B8001, B8005,
M8001, M8005, SP8001, SP8005,
W8001, W8005 (Ch. 1119, 1126)

TRADE NAME	Hoffman Models B8001, M8001, SP8001, W8001 (Ch. 1119); B8005, M8005, SP8005, W8005 (Ch. 1126)		
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, California		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES	Twelve		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	94 Watts, .925 Amp. @ 117 Volts AC (FM)
TUNING RANGE	BROADCAST 530 - 1620KC	FREQ. MOD.	88 - 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER - SEE V-M 1200A - PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10

DIAL CORD STRINGING



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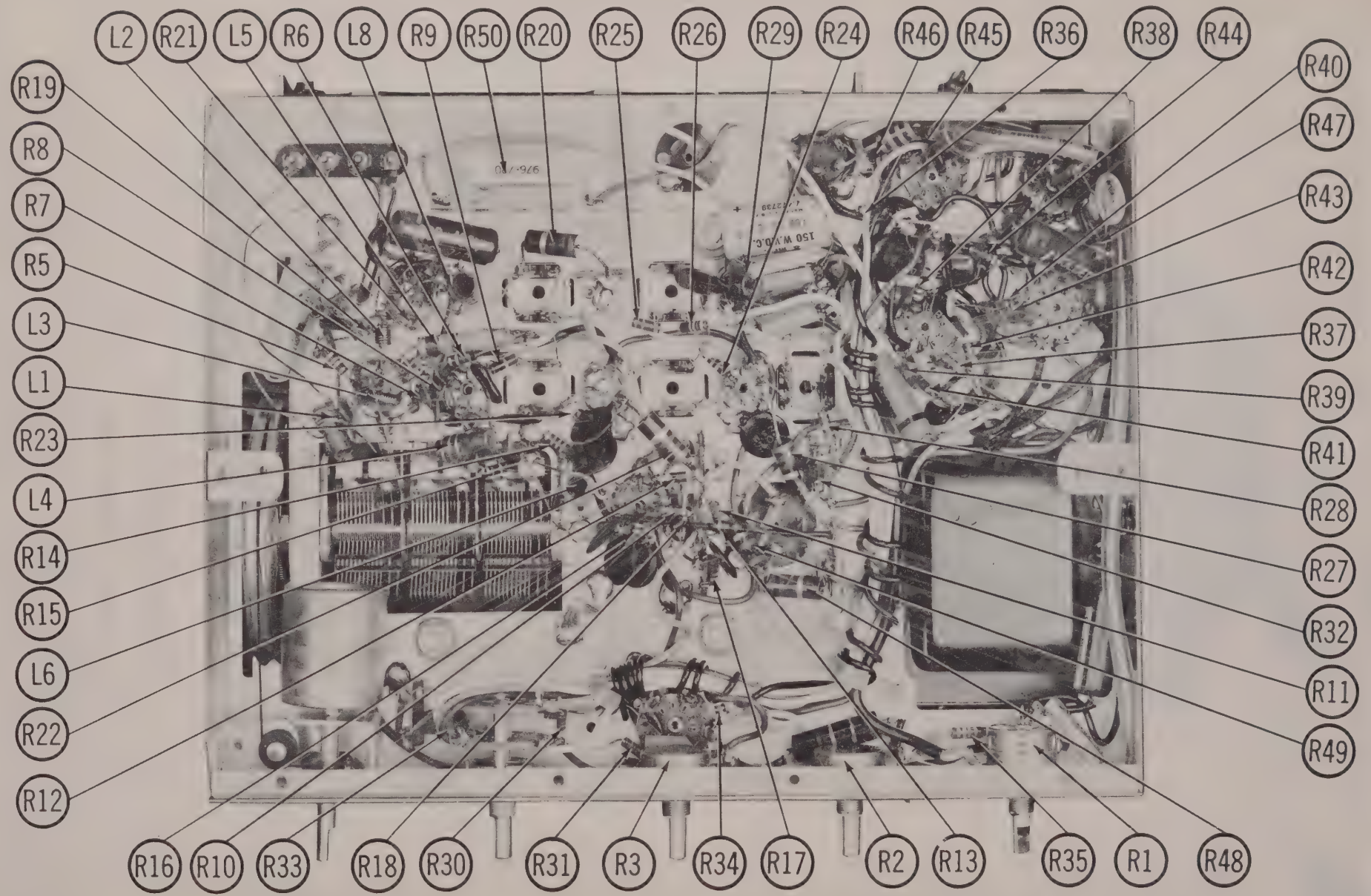
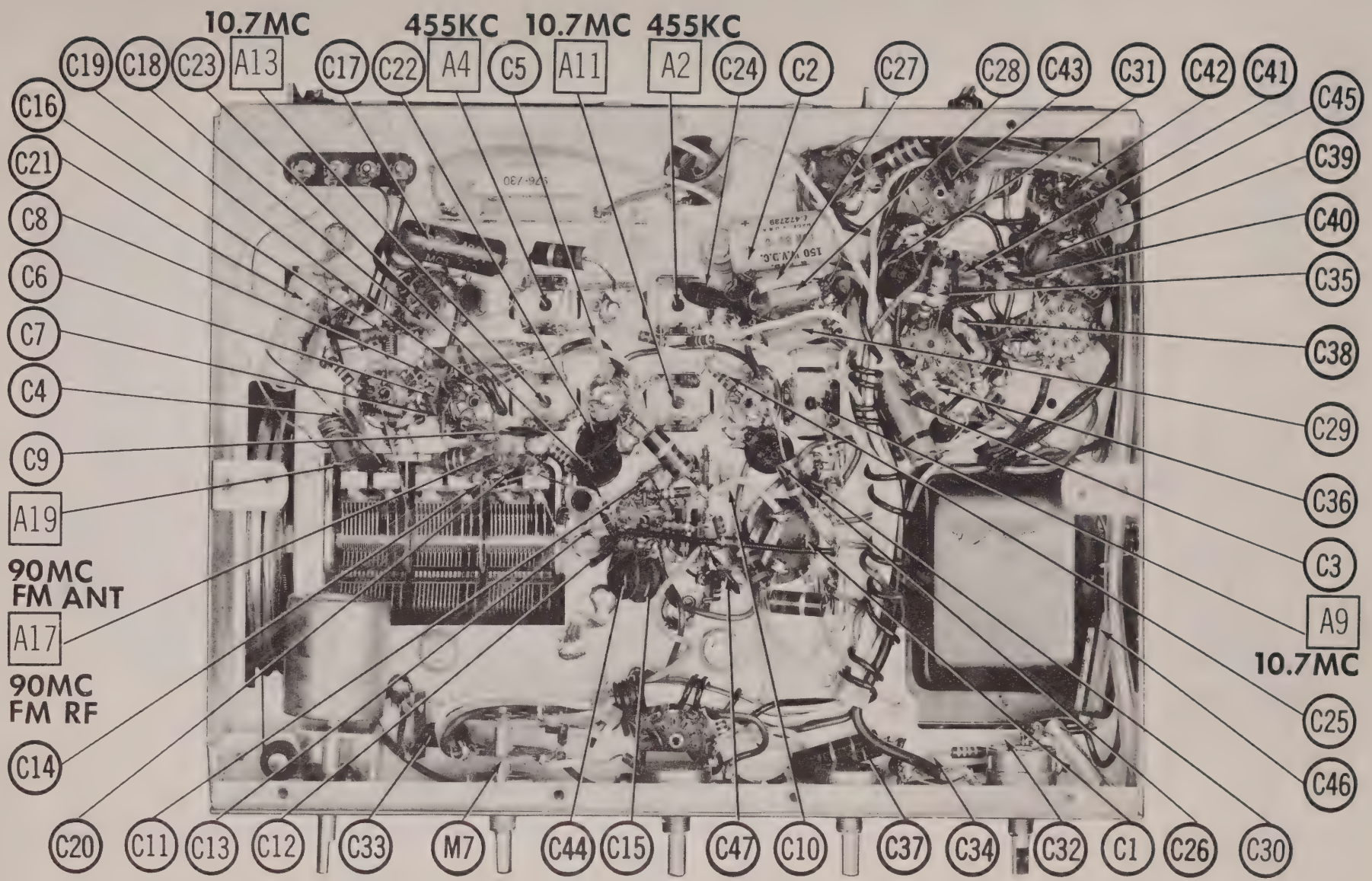
H941

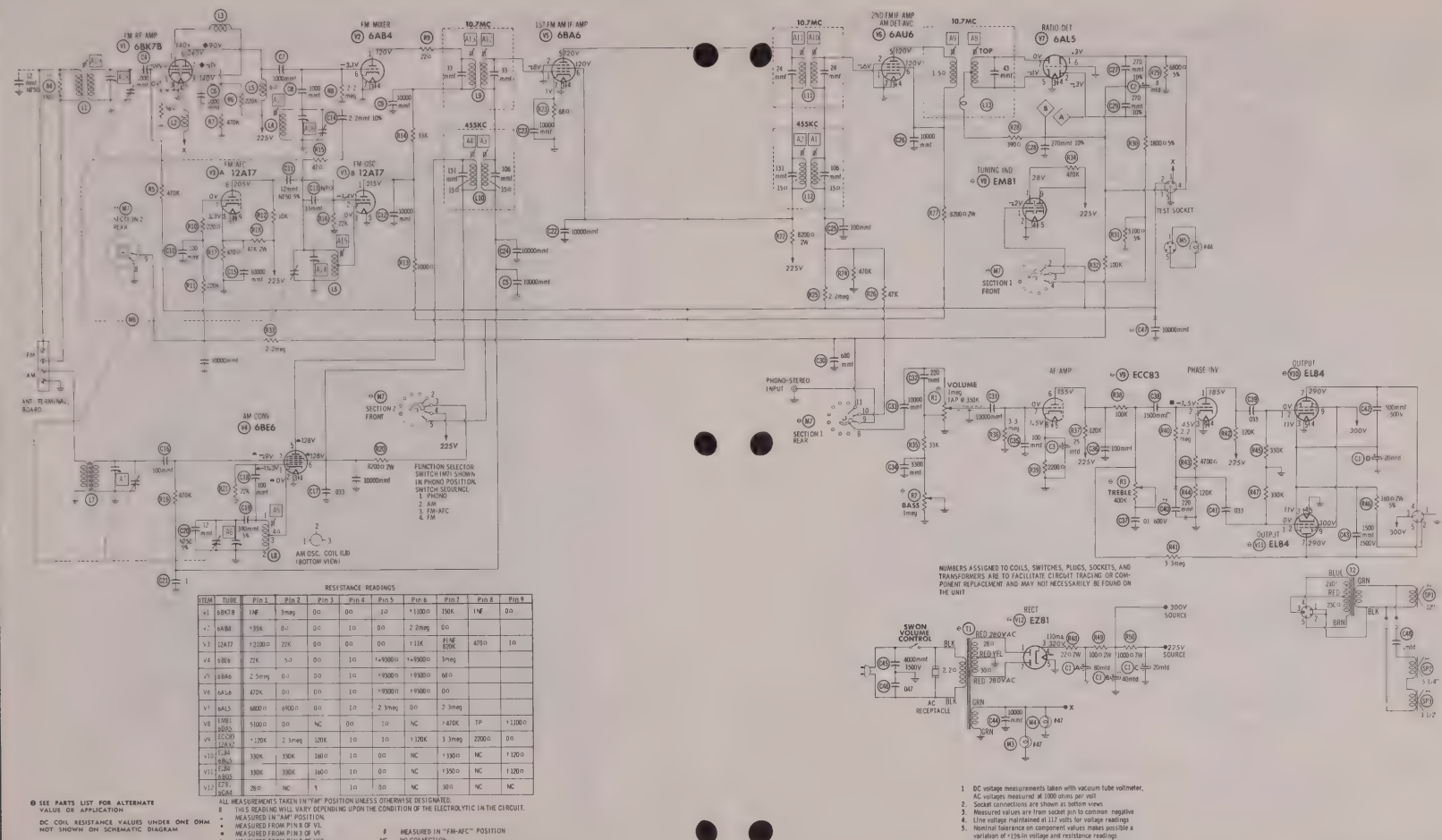
SET 447 FOLDER 7



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS BOTTOM VIEW-ALIGN, CAPACITOR & MISC IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
v1	6BK7B	INF.	3meg	0Ω	0Ω	2Ω	*1100Ω	150K	INF.	0Ω
v2	6AB4	*35K	0Ω	0Ω	1Ω	0Ω	2.2meg	0Ω		
v3	12AT7	*2100Ω	22K	0Ω	0Ω	0Ω	111K	#1 MF 220K	470Ω	1Ω
v4	6BE6	22K	5Ω	0Ω	1Ω	*+9300Ω	*+9300Ω	3meg		
v5	6BA6	2.5meg	0Ω	0Ω	1Ω	*9300Ω	*9300Ω	68Ω		
v6	6AU6	470K	0Ω	0Ω	1Ω	*9300Ω	*9300Ω	0Ω		
v7	6AL5	6800Ω	6900Ω	0Ω	1Ω	2.3meg	0Ω	2.3meg		
v8	EM81 6DA5	5100Ω	0Ω	NC	0Ω	1Ω	NC	*470K	TP	*1200Ω
v9	ECC83 12AX7	*120K	2.3meg	120K	1Ω	1Ω	*120K	3.3meg	2200Ω	0Ω
v10	EL84 6BQ5	330K	330K	160Ω	1Ω	0Ω	NC	*330Ω	NC	*120Ω
v11	EL84 6BQ5	330K	330K	160Ω	1Ω	0Ω	NC	*350Ω	NC	*120Ω
v12	EZ81 6GA4	2Ω	NC	5	1Ω	0Ω	NC	50Ω	NC	NC

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
- MEASURED IN "AM" POSITION.
* MEASURED FROM PIN 8 OF V1.
• MEASURED FROM PIN 3 OF V9.
' MEASURED FROM PIN 3 OF V12.
@ MEASURED IN "FM-AFC" POSITION
NC NO CONNECTION

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

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HOFFMAN MODELS B8001, B8005, M8001, M8005, SP8001, SP8005, W8001, W8005 (Ch. 1119, 1126)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
- A1 thru A4, A8 thru A13..... GENERAL CEMENT #5097, 8727 WALSCO #2515
- A5, A14, A15..... GENERAL CEMENT #5003, 8271, 8721, 8722 WALSCO #2512, 2519, 2525
- A6, A7, A16, A18..... GENERAL CEMENT #5000, 5003, 5009, 8276, 8290 WALSCO #2515
- A17, A19..... GENERAL CEMENT #8606, 8606L, 8282, 9295 WALSCO #2543, 2544, 2545

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	AC probe to high side of loudness control (R1). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	150mmf	High side to AM antenna terminal. Low side to chassis.	600KC	"	Tune to 600KC signal	"	A5	"
3.	"	"	1620KC	"	Tune to 1620KC signal	"	A6	"
4.	"	"	1400KC	"	Tune to 1400KC signal	"	A7	Adjust for maximum deflection. Repeat steps 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to FM RF stator lug of tuning gang. Low side to chassis.	10.7MC (Unmod.)	FM	Tuning gang fully open	DC probe to point Ⓐ. Common to chassis.	A9, A10, A11, A12, A13	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point Ⓑ. Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd	High side to FM RF stator lug of tuning gang. Low side to chassis.	10.7MC (450KC Swp.)	FM	Tuning gang fully open	Vert. Amp. to point Ⓐ. Low side to chassis.	A9, A10, A11, A12, A13	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A8	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	100Ω, 150Ω Carbon Resistors	To FM antenna terminal with 100Ω in high side and 150Ω in low side.	90MC (Unmod.)	FM	90MC	DC probe to point Ⓐ. Common to chassis.	A15, A17, A19	Adjust for maximum deflection.
8.	"	"	108MC	"	108MC	"	A14, A16, A18	Adjust for maximum deflection.

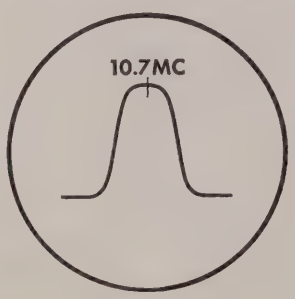


FIG. 1

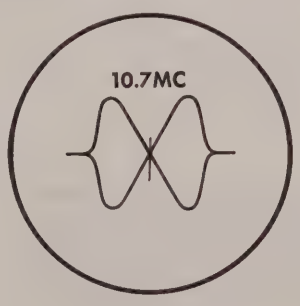


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amplifier	6BK7B
V2	FM Mixer	6AB4
V3	FM Osc. - FM AFC	12AT7
V4	AM Converter	6BE6
V5	1st FM-AM IF Amplifier	6BA6
V6	2nd FM IF Amplifier-AM Det. - AVC	6AU6

ITEM No.	USE	TYPE
V7	Ratio Detector	6AL5
V8	Tuning Indicator	EM81/6DA5 ①
V9	AF Amp. - Phase Inv.	ECC83/12AX7 ①
V10	Output	EL84/6BQ5 ①
V11	Output	EL84/6BQ5 ①
V12	Rectifier	EZ81/6CA4 ①

① Domestic type listed may not be directly interchangeable in some instances.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	HOFFMAN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	400	857105	AFH4-58-75	C0370	FP378	TMT-34	*TVLS-4657.8	
B	■40	350			BR2035	TC65	TD-20-350		
C	▲20	300							
D	20	300							
C2	8	150	856014	PRS150V8	BBR8-150	TC41	TD-8-150	TVA-1405	
C3	25	3	856016	SRE3V25	BBR25-3	TT3X25	ML25-3	TE-1055	

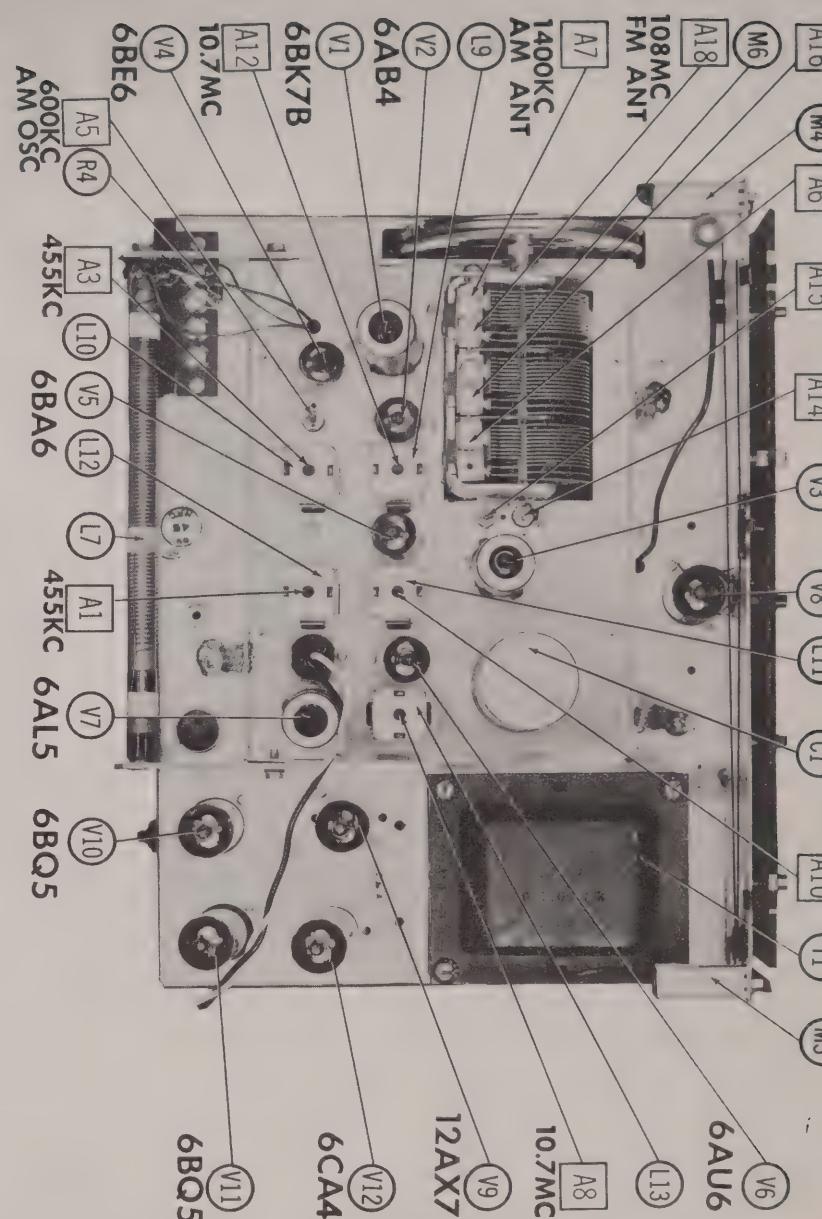
* Not normally in distributors stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	1000			851126	BPD-001	DD-102	BYA10D1M	B-210	5GA-D1	
C5	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C6	1000			851126	BPD-001	DD-102	BYA10D1M	B-210	5GA-D1	
C7	1000			851126	BPD-001	DD-102	BYA10D1M	B-210	5GA-D1	
C8	1000			851126	BPD-001	DD-102	BYA10D1M	B-210	5GA-D1	
C9	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C10	100			851128	SI 100	D6-101	LT6T1	UC-531	5TCC-T1	
C11	12		N750 ±5%	850003				CN7-412		
C12	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C13	33		N750 20%	850012	N750-DI 33	DTN-33	CTA6Q33U	CN7-433	5TCU-Q33	
C14	2.2		10%	854035	NPO-SI 2.2	TCZ-2R2	CTA6V22C	CNO-522	5TCCB-V22	
C15	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C16	100			851128	SI 100	D6-101	LT6T1	UC-531	5TCC-T1	
C17	.033	400		866219	P488N-033	DF-303	CUB6S33	GEM-4133	6TM-S33	
C18	100			851128	SI 100	D6-101	LT6T1	UC-531	5TCC-T1	
C19	390		±5%	862401	1469-00039		5R5T39		MS-339	
C20	12		N750 ±5%	850003				CN7-412		
C21	.1	200		866126	P288N-1	DF-104	CUB4P1	GEM-201	2TM-P1	
C22	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C23	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C24	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C25	100			851128	SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C26	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C27	270		10%	851116	1469-00027		5R5T27		MS-327	
C28	270		10%	851116	1469-00027		5R5T27		MS-327	
C29	270		10%	851116	1469-00027		5R5T27		MS-327	
C30	680			851106	BPD-00068	DD-681	BYA10T68	B-368	5GA-T68	
C31	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C32	220			851114	DI-220	DD-221	L10T22	B-322	5GA-T22	
C33	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C34	3300			851123	DI-3300	DD-332	L10D33	B-233	5GA-D33	
C35	100			851128	SI 100	D6-101	LT6T1	UC-531	5TCC-T1	
C36	100			851128	SI 100	D6-101	LT6T1	UC-531	5TCC-T1	
C37	.01	600			P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C38	1500				BPD-0015	DD-152	BYA10D15	B-215	5GA-D15	
C39	.033	400		866219	P488N-033	DF-303	CUB6S33	GEM-4133	6TM-S33	
C40	220			851114	DI-220	DD-221	L10T22	B-322	5GA-T22	①
C41	.033	400		866219	P488N-033	DF-303	CUB6S33	GEM-4133	6TM-S33	
C42	1500	1500		851115	HVD-15-1500	DD30-152	HVC16D15	2HV-215	MB-D15	
C43	1500	1500		851115	HVD-15-1500	DD30-152	HVC16D15	2HV-215	MB-D15	

CHASSIS—TOP VIEW



HOFFMAN MODELS B8001, B8005, M8001, M8005, SP8001, SP8005, W8001, W8005 (Ch. 1119, 1126)

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C44	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	
C45	4000	1500		851134			HVC30D4		MB-D4	
C46	.047	600		870221	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C47	10000			851002	BPD-01	DD-103	BYA10S1M	B-110	5GA-S1	①
C48	1.0	100			P288N-1.0		CUB2W1	GEM-21	2TM-M1	

① Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA HOFFMAN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	800034	BT-74	A47F4-1meg	Q13-137X	UT-438	Volume, Tap③ 350K Note 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	
R2A	1meg	½	800035	B-70	A47-1meg-Z	Q13-137	U53	Bass Note 2
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	400K	½	800036	B-60	A47-500K-Z	Q13-133	U48	Treble Note 3
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

* Use KR with CRL "Red Label" Controls and KB with "Blue Label" Controls.
Note 1. Part #800042 used in Chassis 1126.
Note 2. Part #800043 used in Chassis 1126.
Note 3. Part #800044 used in Chassis 1126.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	HOFFMAN PART No.	NOTES
R4	330Ω		814222	①
R5	470K		814224	
R6	220K		814220	
R7	470K		814224	
R8	2.2meg		814232	
R9	22Ω		814172	
R10	220Ω		814184	
R11	220K		814220	
R12	10K		814204	
R13	1000Ω		814192	
R14	33K		814210	
R15	47Ω		814176	
R16	22K		814208	
R17	470Ω		814188	
R18	47K	2	818212	
R19	470K		814224	
R20	8200Ω	2	818203	
R21	22K		814208	
R22	8200Ω	2	818203	
R23	68Ω		814178	
R24	470K		814224	
R25	2.2meg		814232	
R26	47K		814212	
R27	8200Ω	2	818203	
R28	390Ω		814187	
R29	6800Ω 5%		814083	
R30	1800Ω 5%		814069	
R31	5100Ω 5%		814080	
R32	100K		814216	
R33	2.2meg		814232	
R34	470K		814224	
R35	33K		814210	
R36	3.3meg		814234	
R37	120K		814217	
R38	100K		814216	
R39	2200Ω		814196	
R40	2.2meg		814232	
R41	3.3meg		814234	
R42	120K		814217	
R43	4700Ω		814200	
R44	120K		814217	
R45	330K		814222	
R46	160Ω 5%	2	818044	
R47	330K		814222	
R48	22Ω	2	818172	
R49	100Ω	2	818180	
R50	1000Ω	7	824425	

① Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA HOFFMAN PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.	776003-1					
L2	Fil. Choke	750007	19-1000	BC-561	4602		1.1 Microhenries
L3	RF Choke	750008	19-1000	BC-561	4602		1 Microhenries
L4	FM RF Coil	776001					
L5	RF Choke	750009			4609		5.6 Microhenries ①
L6	FM Osc. Coil	768009					
L7	Loopstick	924002					
L8	AM Osc. Coil	768010					
L9	1st FM IF	760012	16-3487	FM-254	1463		
L10	1st AM IF	760011	16-6758	BC-352	12-C1	RF-1	
L11	2nd FM IF	760013	16-3487	FM-254	1463		
L12	2nd AM IF	760011	16-6758	BC-353	12-C2	RF-2	
L13	Ratio Detector	774004	17-3498	FM-255	1465		

① IRC Part #CL-1

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ③ .925A	560VCT ③ .110A	6.3V ③ 5.7A	716011 ①						

① Part #716015 used in Chassis 1126.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA HOFFMAN PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4600Ω CT	6-8Ω	724014	Z1011	A-2905	AU-609	A-3870	22S60	S-55X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA HOFFMAN PART No.	QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	708807 ①②	12A6PA	① Includes T2.
SP2	5 1/4"	PM	6-8Ω	708202 ②③	52A1Z8.5	② Used in Chassis 1119.
SP3	3 1/2"	PM	6-8Ω	708001 ②	3A07Z8	③ Used in Chassis 1126.
	12"	PM	6-8Ω	708808 ③		
	3 1/2"	PM	6-8Ω	708201 ③		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA HOFFMAN PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M1	981003	89-TB				

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA HOFFMAN PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	990507 ① 990506 ②	† JPS-39 or †♦ JPS-39SD or ♦ JP-39D	† W-41TPS or †♦ W-41DS or ♦ W-41TPD	† Jewel ♦ Diamond ① Dual Sapphire ② Diamond-Sapphire

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M3	Lamp	940047	#47
M4	Lamp	940047	#47
M5	Lamp	940044	#44
M6	Tuning Cap.	872008	FM-AM, 6 Gang (AM Sections: Ant. 9-288mmf, Osc. 9-294mmf)
M7	Switch	902011	Function Selector (4 Position, Rotary Wafer Type) Chassis 1119
	Switch	902015	Function Selector (4 Position, Rotary Wafer Type) Chassis 1126

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

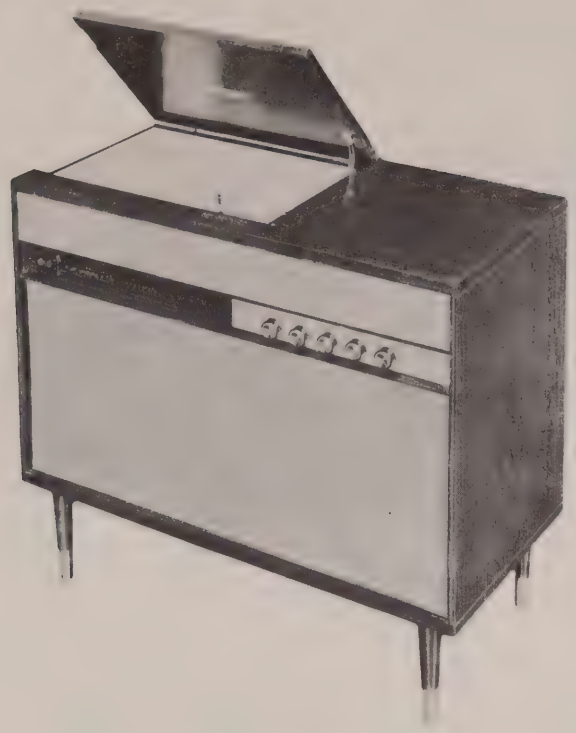
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

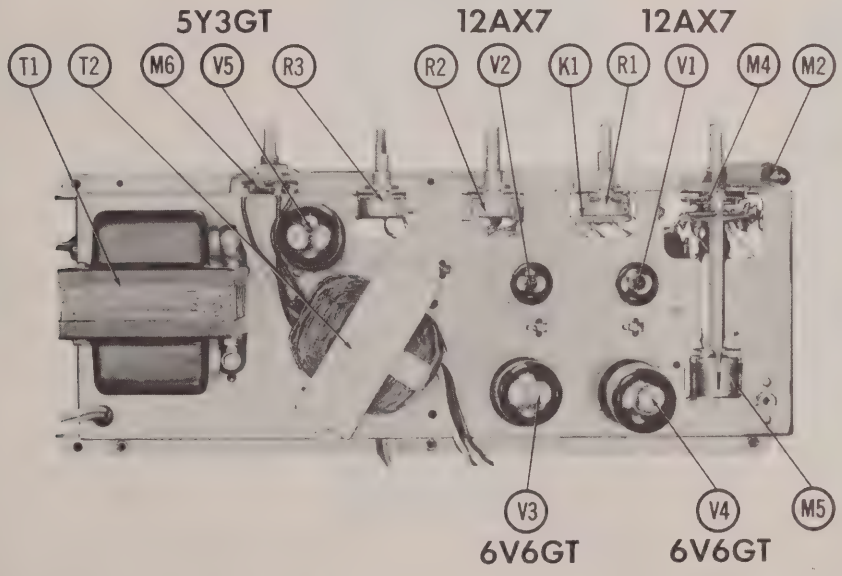
MOTOROLA MODELS 5K11B, M, MC, W (Ch. HS-673, A, B, C, C-1, D)

MOTOROLA MODELS 5K11B, M, MC, W (Ch. HS-673, A, B, C, C-1, D)



TRADE NAME	Motorola Models 5K11B, 5K11M, 5K11MC, 5K11W(Ch. HS-673, HS-673A, HS-673B, HS-673C, HS-673C-1, HS-673D)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated 5 Tube Phono Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 64 Watts, .6 Amp. @117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER VM19RC — SEE SIMILAR V-M 1200A — PHOTOFACT SET 353 FOLDER 16 OR RECORD CHANGER MANUAL RC-10



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	AF Amp. -Phase Inv.	12AX7	
V3	Output	6V6GT	

ITEM No.	USE	TYPE	NOTES
V4	Output	6V6GT	
V5	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲40	400	23B632244	AFH4-79-10	D0663	FP447	TMT-39	TVL-4737	
B	■40	400					TD-50-25		
C	▲20	400							
D	40	25							
C2	5	10AC	23A632250	NP-PRS350V5	BBR10-25 † BBR10-25	TCN105		TVAS-1110*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	10000			21R121946	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	①
C4	10000			21R121946	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	①
C5	.05	400		8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C6	.001	600		8R122103	P688N-001	D6-102	CUB6D1	GEM-621	6TM-D1	
C7	.02	400		8R121566	P488N-02	DD-203	CUB4S2	GEM-412	4TM-S2	
C8	.002	600		8R121568	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C9	.02	600		8R121566	P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C10	220			21K121698	BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C11	.002	600		8R121568	P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C12	.007	400		8K127574	P488N-007	D6-752	CUB16D7	GEM-627	MB-D7	
C13	.05	400		8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C14	.05	400		8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

① Not used in Chassis HS-673A

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	1meg	½	18K642165*	C1-70		Q18-137XX	UDT-289	Loudness. Taps@400K & 700K
R2A	2meg	½	18K642164	B-76	A47-2meg-Z	Q13-139	U55	Treble
B	Shaft			Not Req.	FS-2	Not Req.	Not Req.	
R3A	2meg	½	18K642164	B-76	A47-2meg-Z	Q13-139	U55	Bass
B	Shaft			Not Req.	FS-2	Not Req.	Not Req.	

* Includes K1

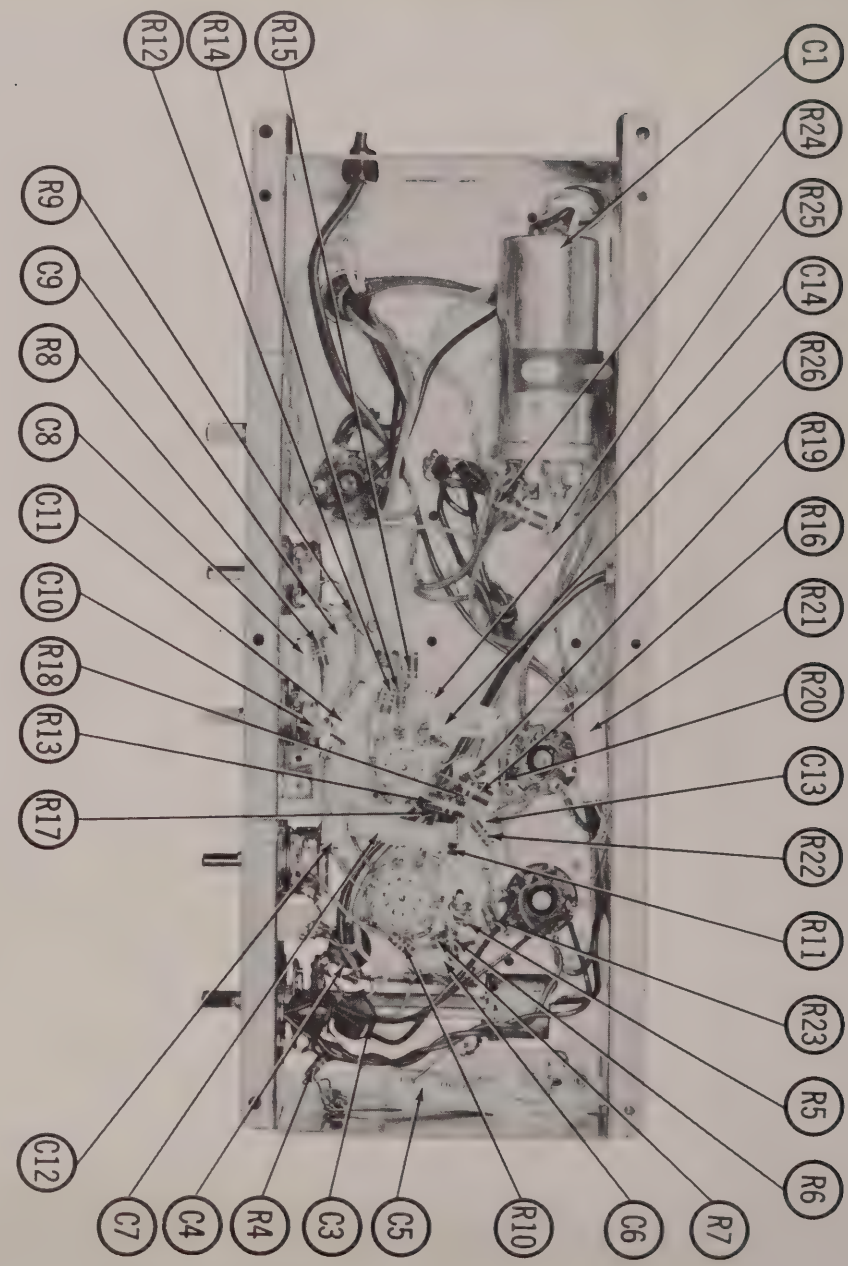
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R4	3.3meg		6K119407	
R5	3.3meg		6K119407	
R6	100K		6K125534	
R7	2700Ω		6K119926	
R8	220K		6K122322	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R9	22K		6K119935	
R10	68K		6K124507	
R11	8200Ω		6K119931	
R12	470K		6K119406	
R13	100K	1	6R6328	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R14	2700Ω		6K119926	Note 1
R15	8200Ω		6K119931	Note 2
R16	100K	1	6R6328	
R17	2200Ω		6R6069	
R18	220K		6K122322	
R19	220K		6K122322	
R20	100Ω		6R6018	

ITEM No.	RATING OHMS	RATING WATT	MOTOROLA PART No.	NOTES
R21	220Ω	5	17K632247	
R22	270K		6R6414	
R23	100Ω		6R6018	
R24	1200Ω	1	6R5770	
R25	22K	1	6R6289	
R26	1Ω	1		Note 3

Note 1. HS-673A uses 4700Ω in this application (Part #6K121847)
Note 2. HS-673A uses 5600Ω in this application (Part #6K127005)
Note 3. Some versions may use 1.2Ω 1W, .47Ω, or .94Ω choke in this application.
Replace with .47Ω ½Watt (Part #17K488266)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Tone Comp.	50mmf, 100mmf, 3000mmf, 3000mmf, 100K, 100K	(Part of R1)	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .6A	560 VCT Ⓐ .085A	5V Ⓐ 2A	25C638596	24R13U ①			PC8404 ①	24R13U ①	R-12A ①
	SEC. 3	SEC. 4	SEC. 5							
	6.3V Ⓐ 1.7A									

① Drill New Mounting Holes

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	4300Ω CT	3-4Ω	25C642122	22S74 ①	A-3028 ①	AU-609 ①	A-3880 ①	22S74 ①	S-57Z ①	① Drill new mounting hole

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	QUAM PART No.	NOTES
SP1	12"	PM	8-10Ω	50K642739 ①	12A6AZ8.5 ①	① Parallel And Phase
SP2	6"	PM	8-10Ω	50K642060 ①	6A21Z8.4 ①	
SP3	4"	PM	10-12Ω	50C636446	4A1TZ10.6	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA MOTOROLA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M1		*93-TB				* Includes needles and mounting mechanism.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R125595	#1847
M3	Lamp	65R125595	#1847
M4	Switch	40C641625	Compensator (5 Position, Rotary Wafer Type)
M5	Switch	40K643290	Power On-Off (SPST, Rotary Snap Type)
M6	Switch	40B641797	Speaker Selector (3 Position, Rotary Wafer Type)

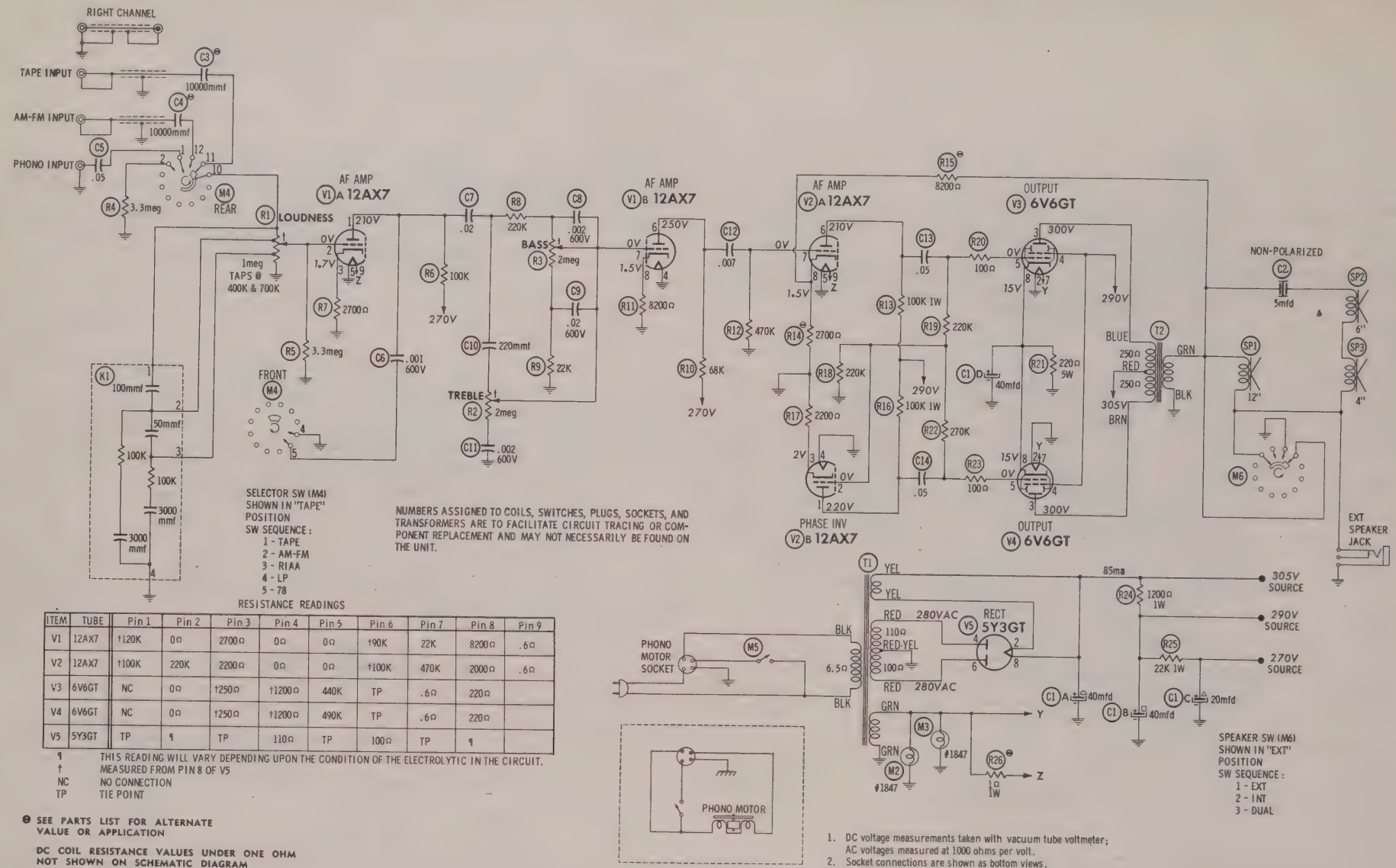
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36K641555	Control, 5 Used
Cabinet	16K641841	Blond Oak, Model 5K11B
Cabinet	16E641840	Mahogany, Model 5K11M
Cabinet	16K642236	California Mahogany, Model 5K11MC
Cabinet	16K641842	Walnut, Model 5K11W
Legs	16K641846	Model 5K11B
Legs	16K641845	Model 5K11M
Legs	16K642238	Model 5K11MC
Legs	16K641847	Model 5K11W
Lid	16K641849	Cabinet, Model 5K11B
Lid	16K641848	Cabinet, Model 5K11M
Lid	16K642237	Cabinet, Model 5K11MC
Lid	16K641850	Cabinet, Model 5K11W

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†120K	0Ω	2700Ω	0Ω	0Ω	†90K	22K	8200Ω	.6Ω
V2	12AX7	†100K	220K	2200Ω	0Ω	0Ω	†100K	470K	2000Ω	.6Ω
V3	6V6GT	NC	0Ω	†250Ω	†1200Ω	440K	TP	.6Ω	220Ω	
V4	6V6GT	NC	0Ω	†250Ω	†1200Ω	490K	TP	.6Ω	220Ω	
V5	5Y3GT	TP	¶	TP	110Ω	TP	100Ω	TP	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V5
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MOTOROLA MODELS 5K11B, M, MC, W (Ch. HS-673, A, B, C, C-1, D)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

NEWCOMB MODELS E-17, E-17P3

NEWCOMB MODELS
E-17, E-17P3

NEWCOMB MODELS
E-17, E-17P3

TRADE NAME	Newcomb Models E-17, E-17P3
MANUFACTURER	Newcomb Audio Products Co., 6824 Lexington Ave., Hollywood 38, California
TYPE SET	AC Operated 5 Tube Two Channel Audio Amplifier (Model E-17P3 Has 3 Speed Manual Record Player)
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 83 Watts, .80 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J97

SET 447 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mike Preamplifier-		
	Phase Inverter	ECC83/12AX7	①
V2	AF Amplifier	6SJ7	

① Early versions use 6SC7 in this application.

ITEM No.	USE	TYPE	NOTES
V3	Output	6L6GB	
V4	Output	6L6GB	
V5	Rectifier	5V4G	②

② Early versions use 5Z4 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	NEWCOMB PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	475	CE-30	AFH4-19-10	D0179.3	FP474.5	TMT-46	TVLS-4825 *	
B	■10	475				TC30	TD-25-50		
C	▲10	475							
D	25	50							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	NEWCOMB PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C3	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C4	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C5	350		10%				L10T35		5GA-T35S 10%*	
C6	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C7	.002	600			P688N-002	D6-202	CUB6D2	GEM-622	6TM-D2	
C8	.1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C9	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C10	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C11	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NEWCOMB PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	RV-49-K	B-77		Q17-139	FC26R	Treble
B	Shaft			Not Req.		Not Req.	SS3500	
C	Switch			KR-1		76-1	US41	
R2	15meg	½	RV-40-K					Bass
R3A	1meg	½	RV-72-K	ABT-74	A47F5-1meg	Q13-137X	UT-443	Channel 1 (Phono) Tap(a) 500K
B	Shaft			AK-11	KSS-3	Not Req.	Not Req.	Note 1
R4A	500K	½	RV-41-K	B-60	A47-500K-Z	Q13-133	U48	Channel 2 (Mic)
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Some versions may use 500K in this application (Part #RV-47).

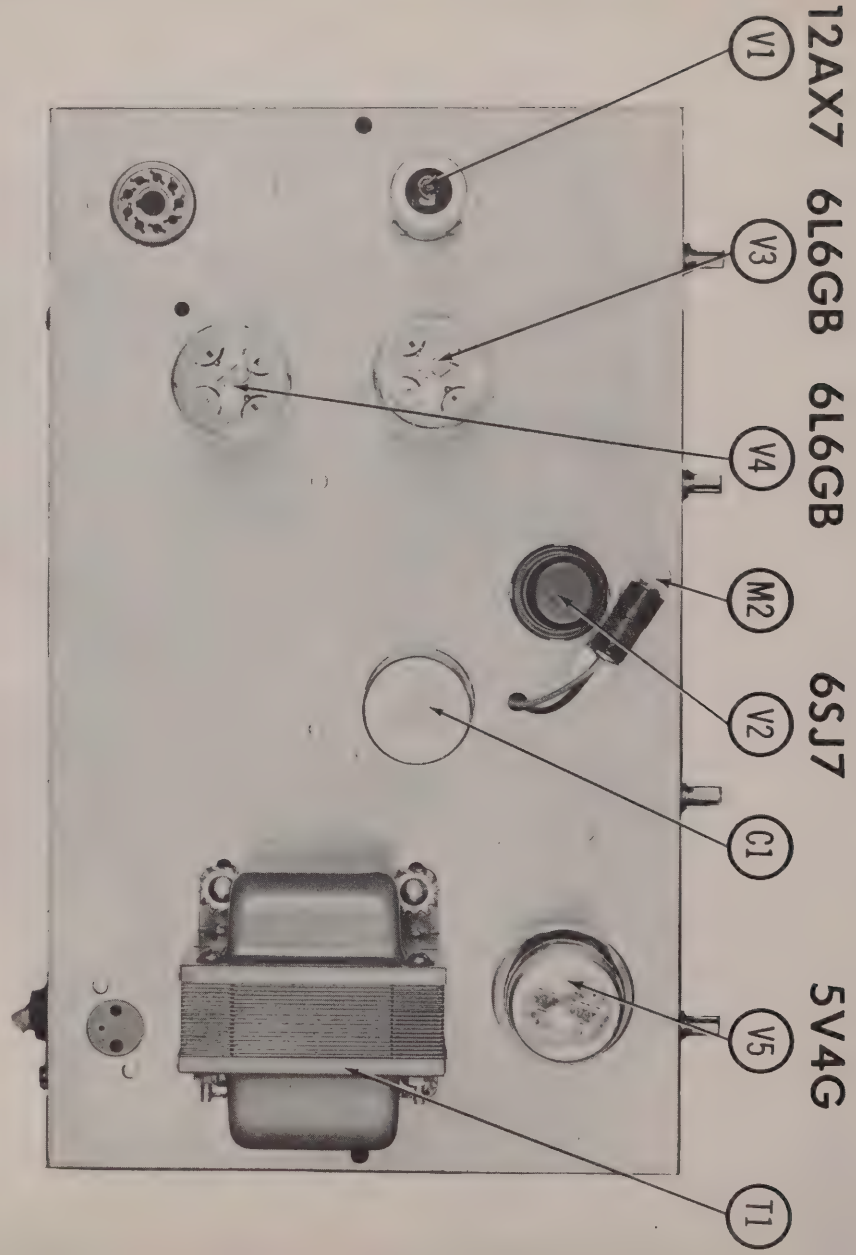
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		NEWCOMB PART No.	NOTES
	OHMS	WATT		
R5	27K			
R6	330K			
R7	18meg			
R8	560K			

ITEM No.	RATING		NEWCOMB PART No.	NOTES
	OHMS	WATT		
R9	18meg			
R10	270K			Note 1
R11	330K			
R12	1meg			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	NEWCOMB PART No.	NOTES
R13	10meg			
R14	560K			
R15	3.3meg			
R16	100Ω			
R17	120K			
R18	560K			

Note 1. Some versions may use 560K in this application.

ITEM No.	RATING OHMS	RATING WATT	NEWCOMB PART No.	NOTES
R19	560K			
R20	8200Ω			Note 2
R21	2200Ω	1		
R22	250Ω	5		
R23	56K			

Note 2. Some versions may use 12K in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .8A	650VCT @ .120A	5V @ 2A	TR-200 ①	24R05U			PC8422	24R05U	R-14A
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT @ 2.5A									

① Alternate Part #TR-116.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5500Ω CT	500Ω Taps @ 70V 16Ω, 8Ω, 4Ω	TR-189 ①							① Alternate Part #TR-117

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA NEWCOMB PART No. FUSE	NEWCOMB PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1A 250V S/B			313001. (3AG 1A 125V S/B)	341001	MDL1	HKP

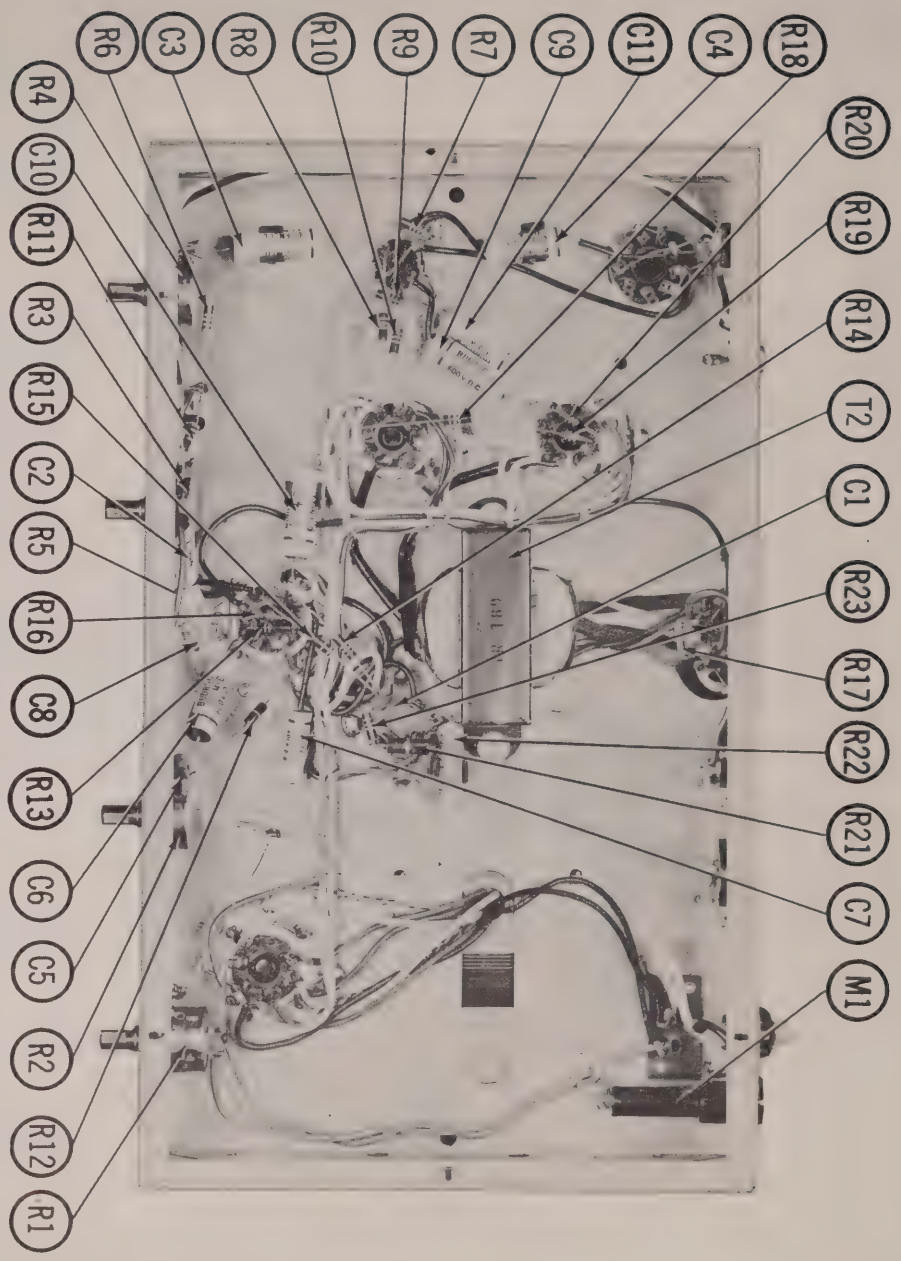
MISCELLANEOUS

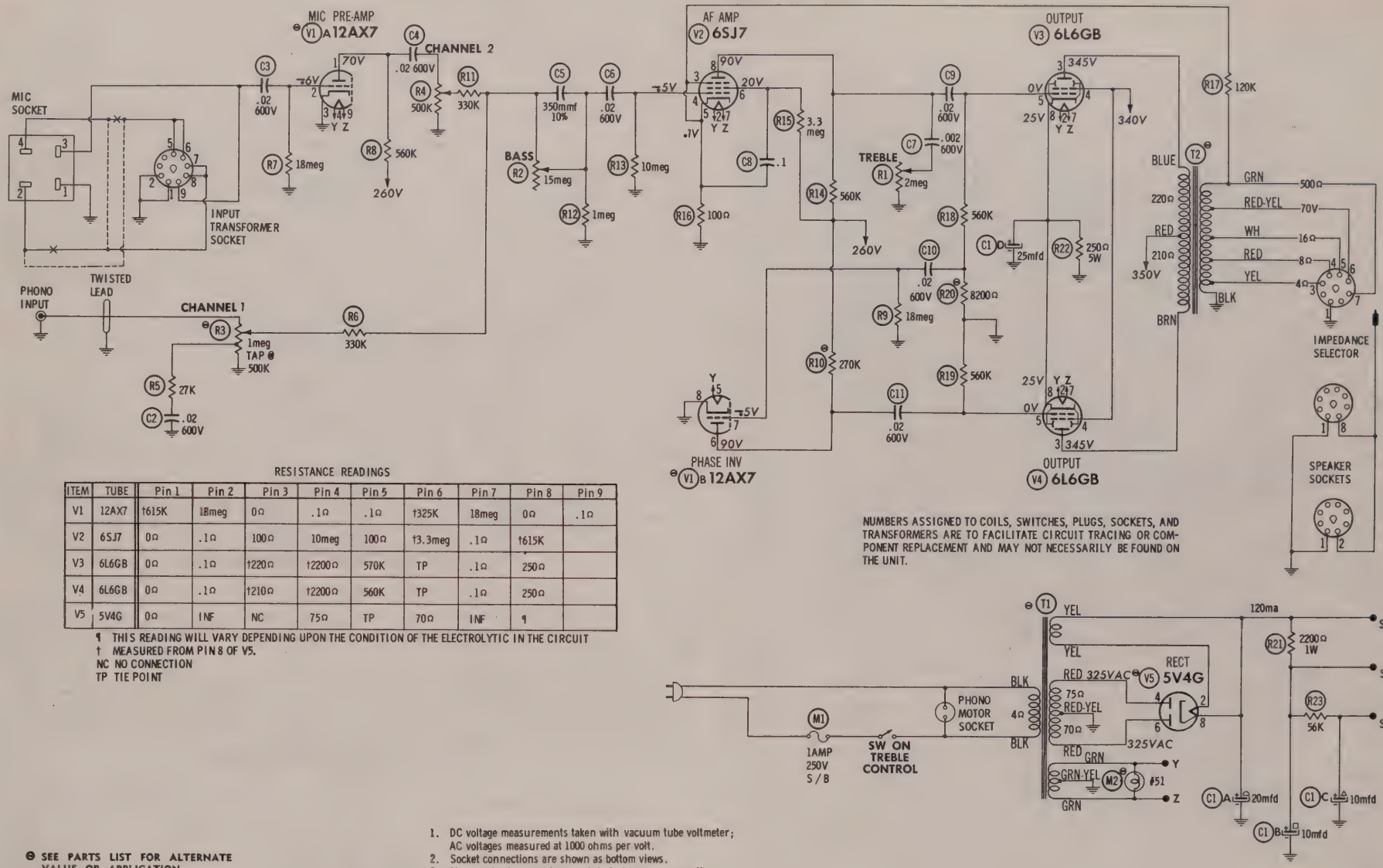
ITEM No.	PART NAME	NEWCOMB PART No.	NOTES
M2	Lamp		#51 (Some versions may use #47)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†615K	18meg	0Ω	.1Ω	.1Ω	†325K	18meg	0Ω	.1Ω
V2	6SJ7	0Ω	.1Ω	100Ω	10meg	100Ω	†3.3meg	.1Ω	†615K	
V3	6L6GB	0Ω	.1Ω	†220Ω	†2200Ω	570K	TP	.1Ω	250Ω	
V4	6L6GB	0Ω	.1Ω	†210Ω	†2200Ω	560K	TP	.1Ω	250Ω	
V5	5V4G	0Ω	INF	NC	75Ω	TP	70Ω	INF	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT
† MEASURED FROM PIN 8 OF V5.
NC NO CONNECTION
TP TIE POINT

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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NEWCOMB MODELS E-17, E-17P3

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

RCA VICTOR MODELS 1BT21, 1BT24, 1BT29, BC3, BCS4, RK222 (Ch. RC-1187)

RCA VICTOR MODELS 1BT21, 1BT24, 1BT29, BC3, BCS4, RK222 (Ch. RC-1187)

RCA VICTOR MODELS 1BT21, 1BT24, 1BT29, BC3, BCS4, RK222 (Ch. RC-1187)

TRADE NAME	RCA Victor Models 1-BT-21, 1-BT-24, 1-BT-29; Battery Charger Models BC-3 or RK-222, (Ch. RC-1187)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	6 Volts DC
TUNING RANGE--BROADCAST	540-1600KC
RATING	8MA@6 Volts DC (No Signal, Min. Volume) 7.5MA@6 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1, A2, A3, A6..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8282, 8728, 8987, 8988
WALSCO #2515, 2531, 2532
A4, A5..... GENERAL CEMENT #5000, 5003, 5004, 5008, 5009, 8276, 8290
WALSCO #2515, 2520, 2523, 2525, 2537

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		High side to junction of loop (L1) & tuning cap (M4). Low side to chassis.	455KC (400∿ Mod.)	Point of non-interference near 1600KC.	Across voice coil	A1, A2, A3	Adjust for maximum output.
2.		Loop	1620KC	Tuning gang fully open	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A5	"
4.		"	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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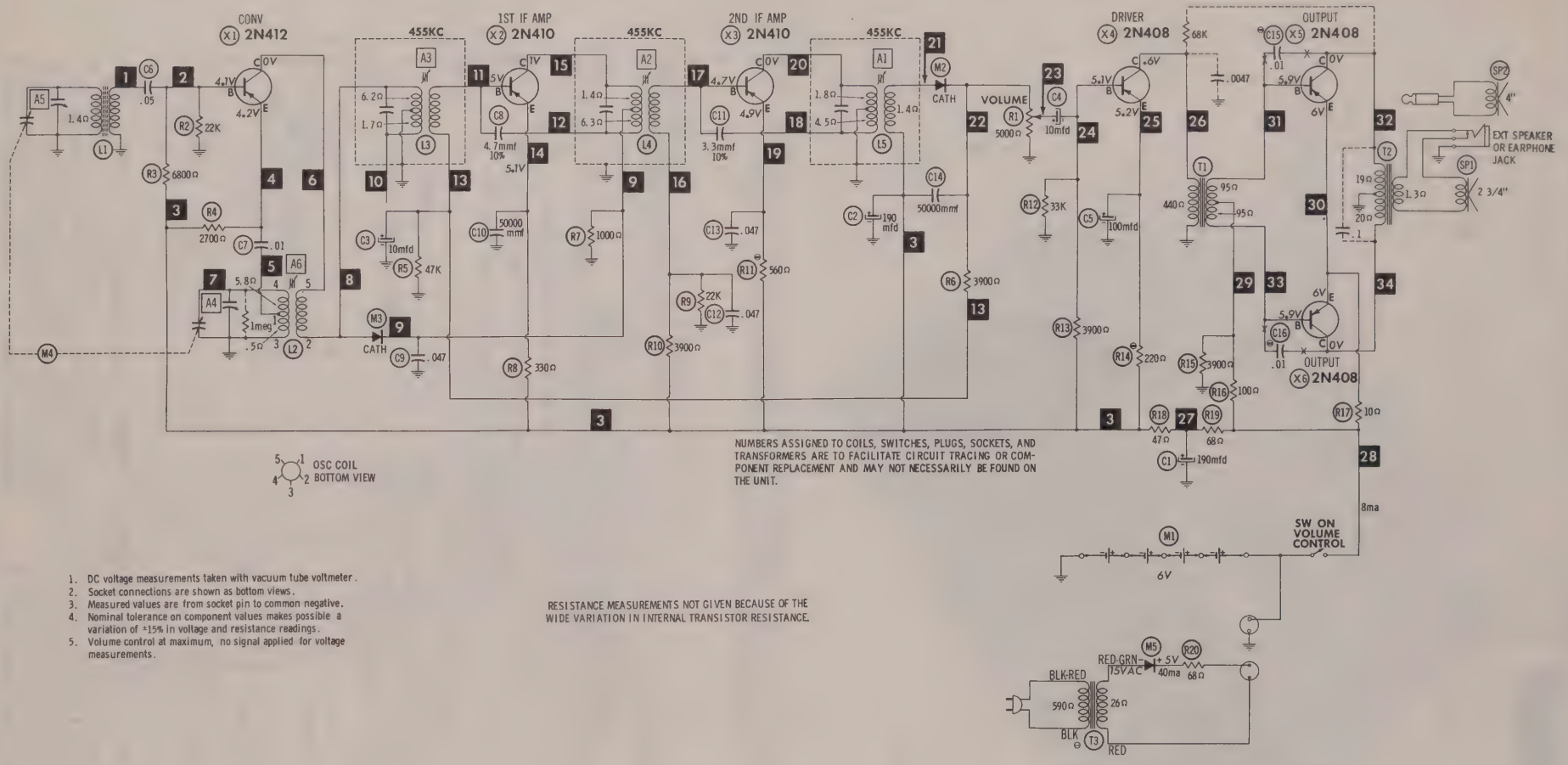
SET 447 FOLDER 10



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE®

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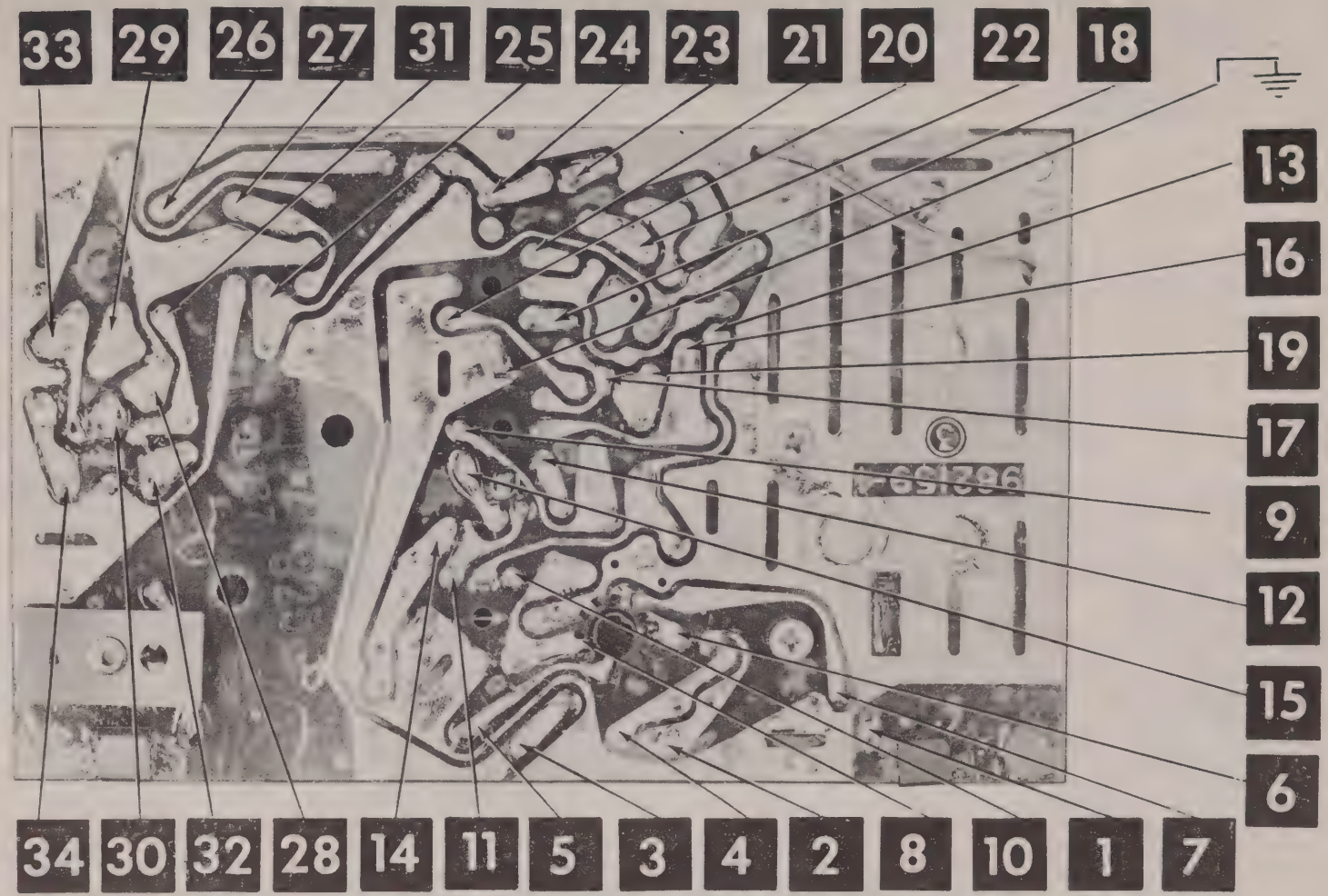
RCA VICTOR MODELS 1BT21, 1BT24, 1BT29, BC3, BCS4, RK222 (Ch. RC-1187)



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PRINTED BOARD

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	500Ω CT	16Ω	106405	GH103			TA-21	TR-18		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	
SP1	2 3/4"	PM	15Ω	106400 ①		① Used in chassis RC-1187
SP2	4"	PM	16Ω	106545 ②	4A1Z16	② Used in BCS-4

BATTERIES

ITEM No.	VOLTAGE	RCA Victor PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	6V	VS-034 ① VS-313 ② 106973 ③		Z①		1015 ① E9 ②		M-15R① ZM9 ②	① 4 Used ② Mercury Type, 4 Used ③ Rechargeable battery

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	
M2		101615	1N60	1N295	Detector (Pigtail)
M3		101615	1N60	1N295	Overload (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Tuning Cap. Printed Board	106404 106430	2 Gang, Ant. 7-123mmf, Osc. 8-82mmf Less Antenna, Brackets and Grommets, Speaker and Spacer, Tuning Cap, Transistors, Volume Control and Bracket, Earphone Jack, and Miscellaneous Hardware.

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	106409	Tuning, Includes Retaining Screw
Knob	106410	Volume-On-Off, Models 1-BT-21 and 1-BT-24
Knob	106411	Volume-On-Off, Model 1-BT-29
Case	Y7021	Front And Back, Model 1-BT-24
Case	Y7020	Front And Back, Model 1-BT-21
Case	Y7022	Front And Back, Model 1-BT-29
Cover	106339	Recharger Unit

BATTERY RECHARGER UNIT

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R20	68Ω		502068	

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	117V @ .055A	15V @ .040A		106341 ①						

① Models BC-3, BCS-4

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	RCA Victor PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M5	.040A	106340	1001A	Q1H	71	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N412	Converter		2N412	2N486	2N412	PNP
X2	2N410	1st IF Amplifier		2N410	2N483	2N410	PNP
X3	2N410	2nd IF Amplifier		2N410	2N483	2N410	PNP
X4	2N408	Driver		2N408	2N362	2N408	PNP
X5	2N408	Output		2N408	2N632	2N408	PNP Note 1
X6	2N408	Output		2N408	2N632	2N408	PNP Note 1

Note 1. X5 & X6 are a matched pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	190	10	106443					TE-1119.6	
C2	190	10	106443					TE-1119.6	
C3	10	10	103382	XPP-10010	NL10-10	TT12X10	ML10-15	VL-1127	
C4	10	10	103382	XPP-10010	NL10-10	TT12X10	ML10-15	VL-1127	
C5	100	10	106442	SRE12V100	NL100-10	TT15X100	ML100-15	VL-1140	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	.05	50		106500	P285N-047	DDA-503	STM1S47	GEM-4147	68P16	
C7	.01	50		106501	P285N-01	DDM-103	STM1S1	GEM-411	68P14	
C8	4.7		10%	102235	NPO-SI 4.7	TCZ-4R7	C10V47C	CNO-547	5TCCB-V47	
C9	.047	50		106500	P285N-047	DDA-503	STM1S47	GEM-4147	68P16	
C10	50000			105715	BPD-05			BT-150	5HK-S5	
C11	3.3		10%	71503	NPO-SI 3.3	TCZ-3R3	C10V33C	CNO-533	5TCCB-V33	
C12	.047	50		106500	P285N-047	DDA-503	STM1S47	GEM-4147	68P16	
C13	.047	50		106500	P285N-047	DDA-503	STM1S47	GEM-4147	68P16	
C14	50000			103380	BPD-05			BT-150	5HK-S5	
C15	.01	50		106501	P285N-01	DDM-103	STM1S1	GEM-411	68P14	Note 1
C16	.01	50		106501	P285N-01	DDM-103	STM1S1	GEM-411	68P14	Note 1

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/4	106402					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R2	22K		502322	
R3	6800Ω		502268	
R4	2700Ω		502227	
R5	47K		502347	
R6	3900Ω		502239	
R7	1000Ω		502210	
R8	330Ω		502133	
R9	22K		502322	
R10	3900Ω		502239	

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R11	560Ω		502156	Note 1
R12	33K		502333	
R13	3900Ω		502239	
R14	220Ω		502122	Note 2
R15	3900Ω		502239	
R16	100Ω		502110	
R17	10Ω		502010	
R18	47Ω		502047	
R19	68Ω		502068	

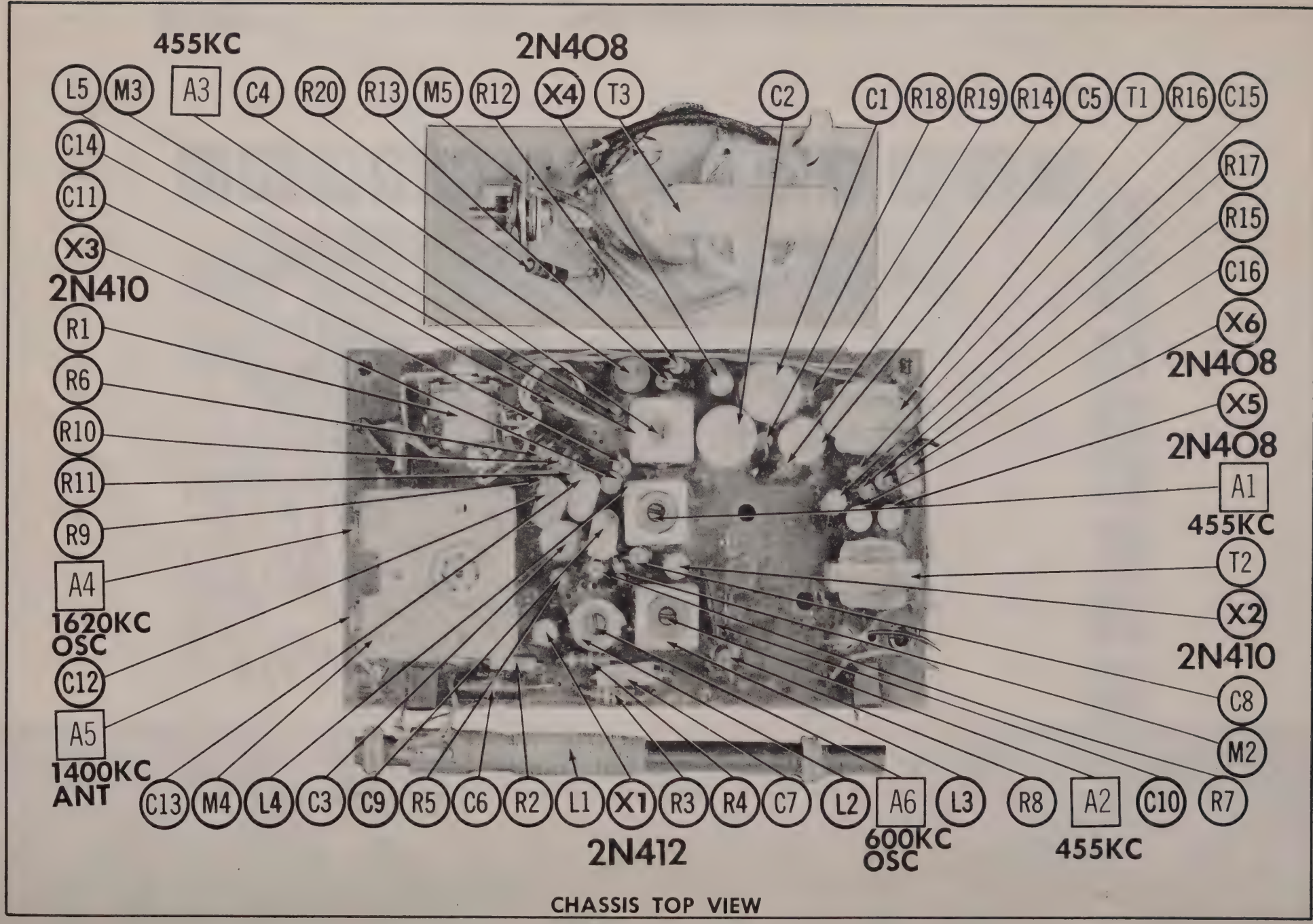
Note 1. Some versions may use 390Ω in this application (Part #502139).
Note 2. Some versions may use 180Ω in this application (Part #502118).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	106403					
L2	Osc. Coil	105726					
L3	1st IF Trans.	105723					
L4	2nd IF Trans.	105724					
L5	3rd IF Trans.	105725					

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.2	: 1	106404						



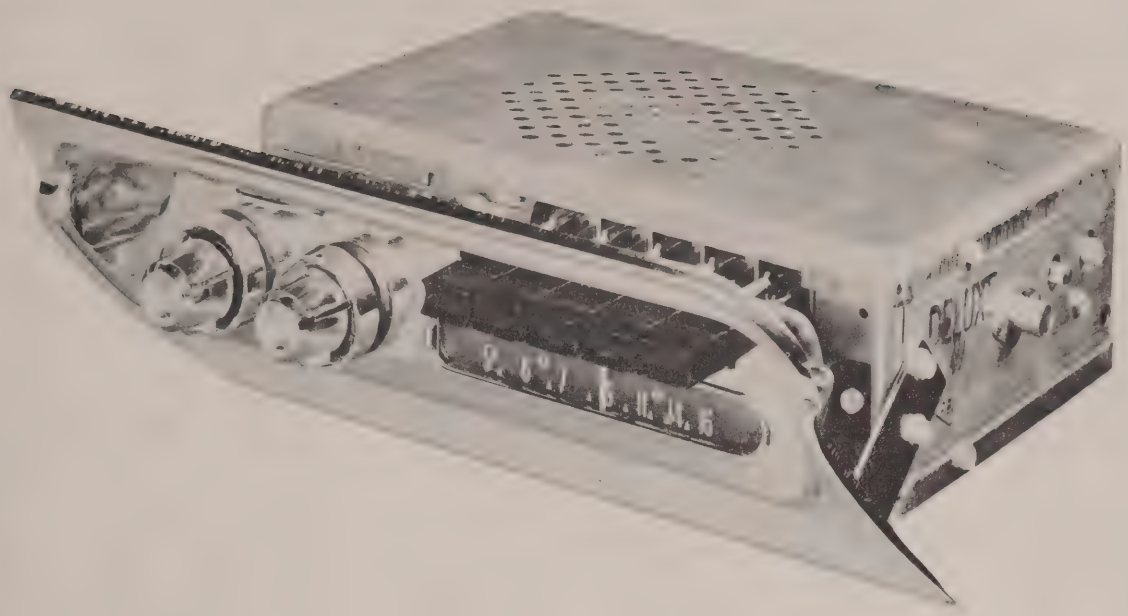
CHASSIS TOP VIEW

PHOTOFACT* Folder

EIA MEMBER

RIVERSIDE
MODEL FJB-6681A

RIVERSIDE
MODEL FJB-6681A



RIVERSIDE
MODEL FJB-6681A

TRADE NAME	Riverside Model FJB-6681A (For 1958 Plymouth Automobiles)
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	Battery Operated Custom Built 4 Tube AM Automobile Receiver With Transistorized Output
POWER SUPPLY	12 Volt Storage Battery — RATING 1.32 Amp. @12.6 Volts DC
TUNING RANGE—BROADCAST	538 - 1610 KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:
A1 thru A4..... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5 and A6..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	265KC (400∿ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1610KC	"	"	A5	"
3.	68mmf	High side to antenna lead. Low side to chassis.	"	"	"	A6, A7	"
4.	With receiver installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum volume.						

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of J81 the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 447 FOLDER 11

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12AF6	12BL6*
V2	Converter	12AD6	
V3	IF Amplifier	12BL6	12AF6*
V4	Det. -AVC-AF Amp.	12AE6	

* Alternate

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N363	Driver		2N591	2N363		PNP
X2	1124A	Output	LT-52			2N242	PNP ①

① When replacing, coat both sides of insulator with silicon grease.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	Riverside PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■500	15	20-315	AFH2-02-75	B0045	WP200.7		TVLS-2155*	
B	▲150	15							
C2	750	3	20-757	SRE3V500	BR1000-6	TC310	TD-1000-6	TVAS-1097*	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	Riverside PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	.047	200			P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C4	3000				BPD-003	DD-302	BYA10D3	B-233	5GA-D3	
C5				28-800						
C6	40		NPO		NPO-DI 39				5TCC-Q40S *	
C7				28-400						
C8	12				DI 12	DD-120	L10Q12	CNO-412	5GA-Q12	
C9	40		NPO		NPO-DI 39				5TCC-Q40S*	
C10	51		N750	15-510N		TCN-51	C10Q1U		5TCU-Q51S*	
C11				28-281						
C12	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C13	27				DI 27	DD-270	L10Q27	CNO-427	5GA-Q27	
C14	3000				BPD-003	DD-302	BYA10D3	B-233	5GA-D3	
C15	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C16	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C17	220				BPD-00022	DD-221	L10T22	B-322	5GA-T22	①
C18	.01	100			P288N-01	D6-103	CUB4S1	GEM-411	4TM-S1	①
C19	.5	100			P288N-5		CUB2P5	GEM-205	2TM-P5	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Riverside PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	80A649A	F1-68	RTV-682C	† QJ995A	■ UE3953-S	Tone
B	1meg			R2-56	Not Req.			Volume, Tap@600K
C	Shaft			S4	Not Req.			
D	Switch			KR-4	Not Req.			

CONTROLS (cont)

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Riverside PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R2	25Ω	2(ww)	80A877					
R3	500Ω	2(ww)	62-501	39-500-100			FL-600S	Fader Bias, Stop@100Ω

■ "STA-LOCK" Equivalent: FW26A, OS1750, RU16T654, IS2312, US41

† "Concentrikit" equivalent: K-2 Kit, with base elements and shafts: Bl3-139, P1-123 (Panel)
(Not available as a factory assembled part.) Bl9-137X, R1-209 (Rear)
S4 (Adapter)
76-1 (Switch)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Riverside PART No.	NOTES
	OHMS	WATT		
R4	1500Ω			
R5	150K			
R6	330Ω			
R7	4.7meg			
R8	2.2meg			
R9	47K			
R10	10meg			
R11	10meg			
R12	47K			
R13	1meg			

Note 1. Some versions may use 120Ω in this application.

ITEM No.	RATING		Riverside PART No.	NOTES
	OHMS	WATT		
R14	100K			
R15	3.3meg			
R16	470K			
R17	150Ω			Note 1
R18	12K			
R19	6800Ω			
R20	150Ω			Note 2
R21	1Ω	1		
R22	22Ω			
R23	150Ω			

Note 2. Some versions may use 220Ω in this application.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Riverside PART No.	REPLACEMENT DATA
K1	Ant. Isolation	100mmf, 1.2meg.		Sprague PRC-9

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		Riverside PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Tuning Coil	†						
L2	RF Tuning Coil	†						
L3	Osc. Tuning Coil	†						
L4	Input IF	14-265	16-6752	16-6752	BC-350	12-H2	RF-3	
L5	Output IF	14-267	16-6754	16-6754	BC-354	12-H6		
L6	"A" Lead Choke							1.2uh

† Part Of Tuner Assy, M3.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	Riverside PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L7	1.3A	.9Ω	.008 HY	75A601						

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Riverside PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	8	1	75A702C						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA							NOTES
	PRI.	Riverside PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	22Ω Tap ⓐ 3-4Ω	75A966 ①							① Alternate Part #75A466

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Riverside PART No.	QUAM PART No.	
SP1	5" x 7"	PM	3-4Ω	73B654	69A3	① Alternate Part #73-1829
SP2	5" x 7"	PM	3-4Ω	73B654①	69A3	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Riverside PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	7AG	7½A 32V	108-100		30707.5 (7½A 32V)	155009	SFE7½	HDH

MISCELLANEOUS

ITEM No.	PART NAME	Riverside PART No.	NOTES
M2	Lamp	1891	#1891
M3	Tuner	78-87	

CABINETS & CABINET PARTS

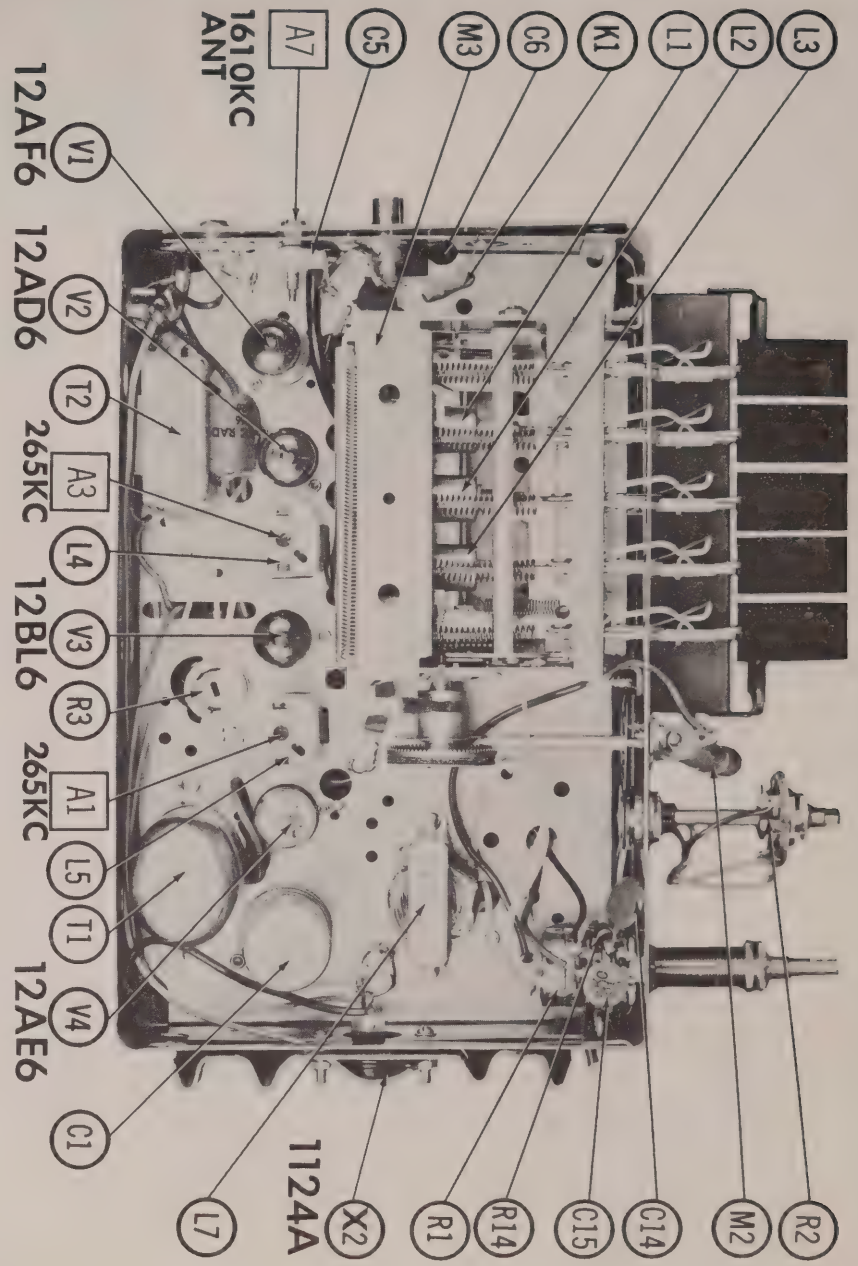
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

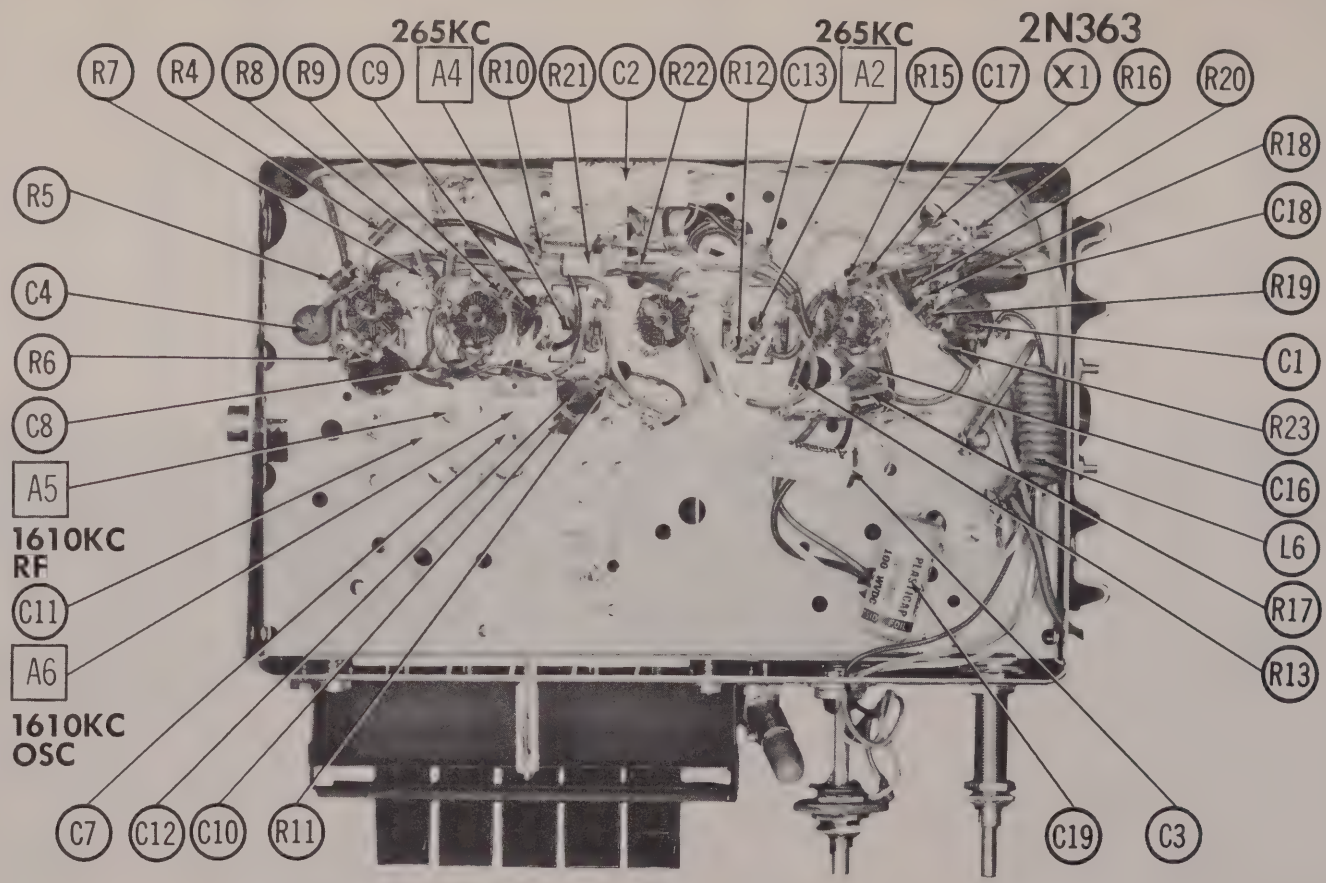
NAME	PART NO.	DESCRIPTION
Knob	48A646	Tuning, Volume-On-Off
Knob	48A648	Tone, Fader
Case Cover	52B670	Top
Case Cover	52B670-1-X	Bottom
Dial Window	135-87	

WIRING DATA

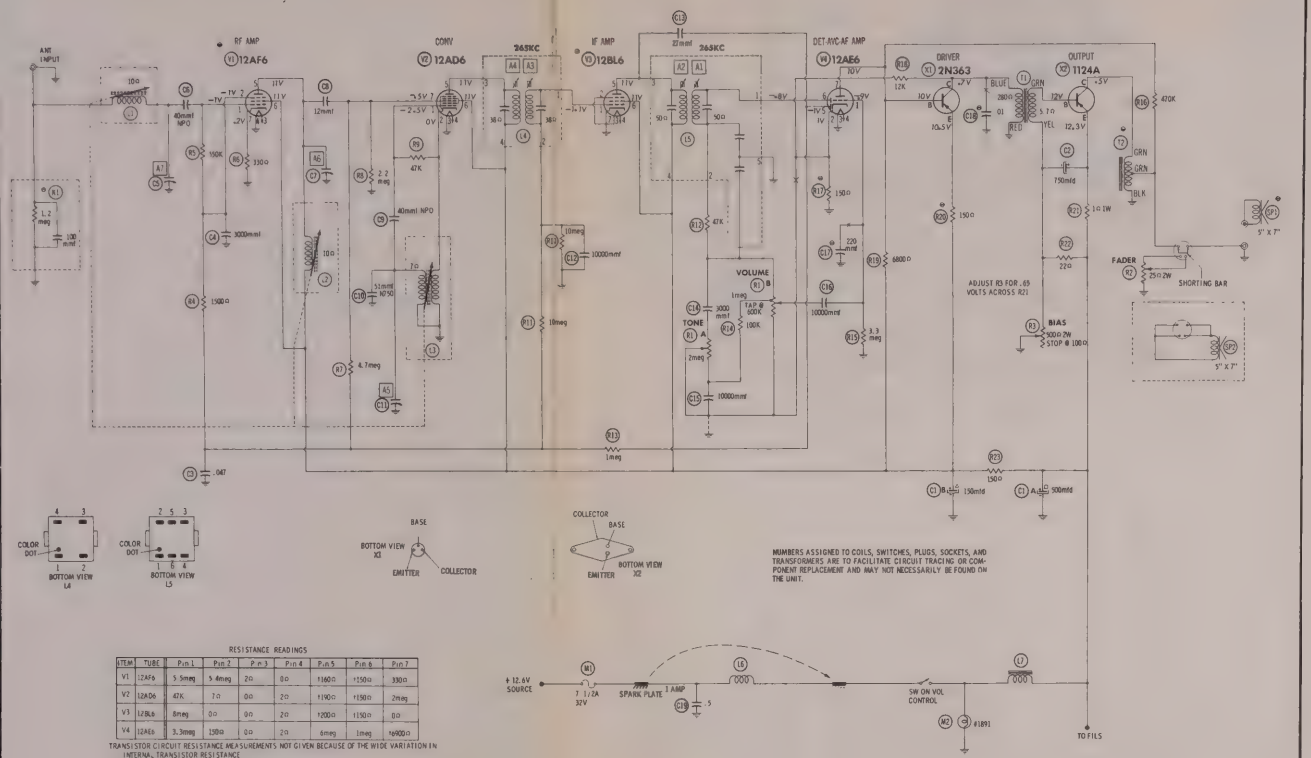
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire	Use BELDEN No. 8885
Bonding Strap	Use BELDEN No. 8661

CHASSIS—TOP VIEW





CHASSIS BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AF6	5.5meg	5.4meg	2Ω	0Ω	†160Ω	†150Ω	330Ω
V2	12AD6	47K	7Ω	0Ω	2Ω	†190Ω	†150Ω	2meg
V3	12BL6	8meg	0Ω	0Ω	2Ω	†200Ω	1150Ω	0Ω
V4	12AE6	3.3meg	150Ω	0Ω	2Ω	6meg	1meg	†600Ω

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

† MEASURED FROM JUNCTION OF L7 AND C1A

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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RIVERSIDE
MODEL FJB-6681A

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

V-M MODEL 1296

V-M
MODEL 1296

TRADE NAME	V-M Model 1296
MANUFACTURER	V-M Corp., Benton Harbor, Michigan
TYPE SET	AC Operated 2 Tube AM Tuner And 3 Tube Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles
RATING	50 Watts, .49 Amp. @ 117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	540 - 1650KC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
With tuning gang fully closed, position pointer at calibration point at left end of scale.
Suggested alignment tools: A1 thru A4.....GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A6.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 6BE6 (V4). Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1670KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6	"
4.		"	"	"	"		Adjust for maximum output by SLIGHTLY bending the first set of segments on the tuning gang antenna rotor.
5.		"	1000KC	Tune to 1000KC signal	"		Adjust for maximum output by SLIGHTLY bending the second set of segments on the tuning gang antenna rotor.
6.		"	600KC	Tune to 600KC signal	"		Adjust for maximum output by SLIGHTLY bending the third set of segments on the tuning gang antenna rotor.

7. Pointer should be within + 1/16" of the center line of the 600, 1000, and 1400KC calibration mark. Coverage should include 540KC and 1650KC. If calibration and/or coverage are incorrect, plates of the oscillator rotor of the tuning gang should be adjusted by SLIGHTLY bending for maximum output at settings of 600, 1000, and 1400KC.

Repeat steps 2 thru 7.
Trimmer cap on tuning gang should not be extremely tight or too loose to cause noise or to vibrate.

Turn tuning shaft thru full tuning range and check for noise caused by tuning cap plates rubbing or pointer rubbing on dial.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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J78

V-M
MODEL 1296

SET 447 FOLDER 12

RESISTANCE READINGS

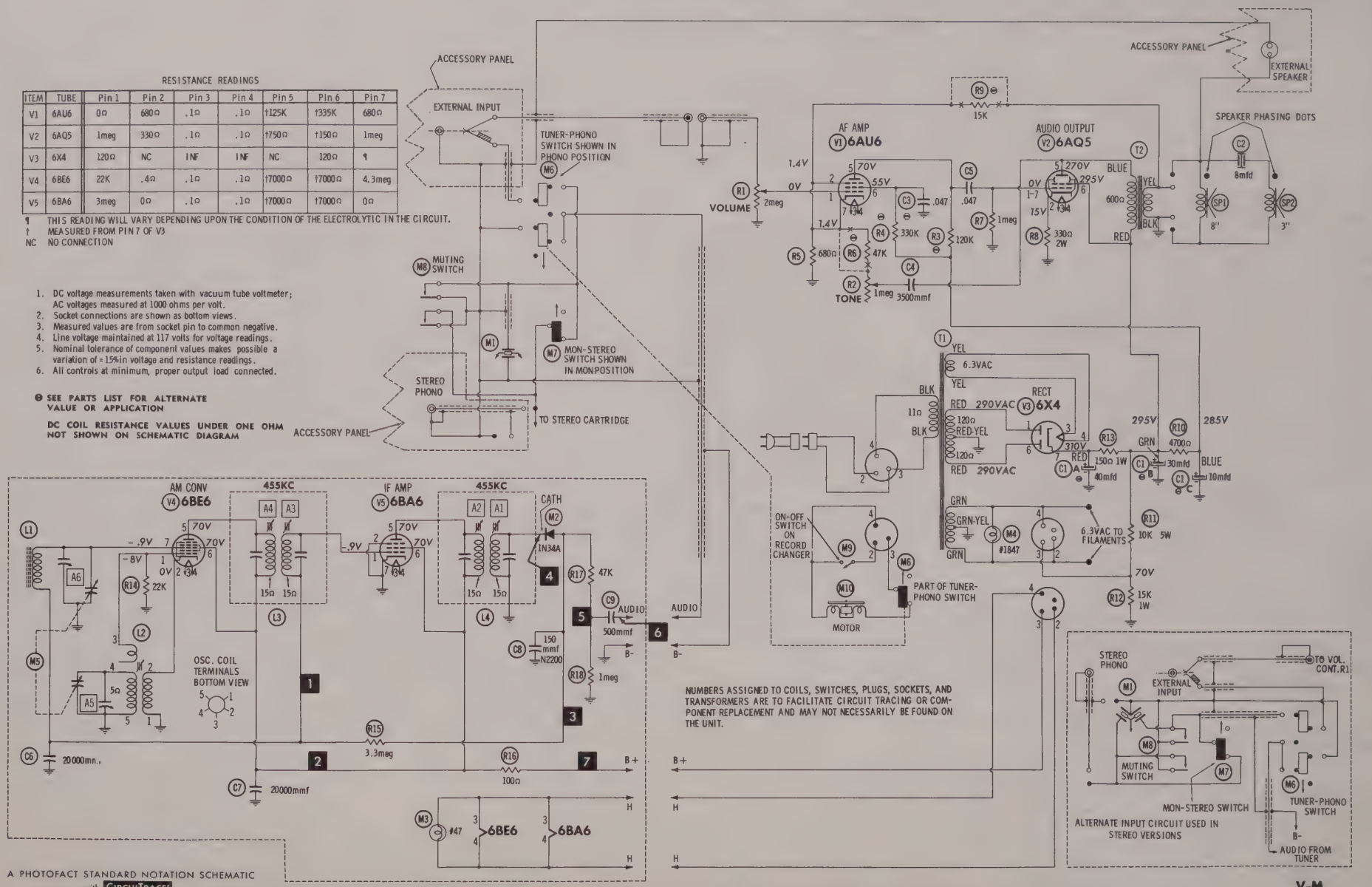
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	6AU6	0Ω	680Ω	.1Ω	.1Ω	†125K	†335K	680Ω
V2	6AQ5	1meg	330Ω	.1Ω	.1Ω	†750Ω	†150Ω	1meg
V3	6X4	120Ω	NC	INF	INF	NC	120Ω	¶
V4	6BE6	22K	.4Ω	.1Ω	.1Ω	†7000Ω	†7000Ω	4.3meg
V5	6BA6	3meg	0Ω	.1Ω	.1Ω	†7000Ω	†7000Ω	0Ω

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V3
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM



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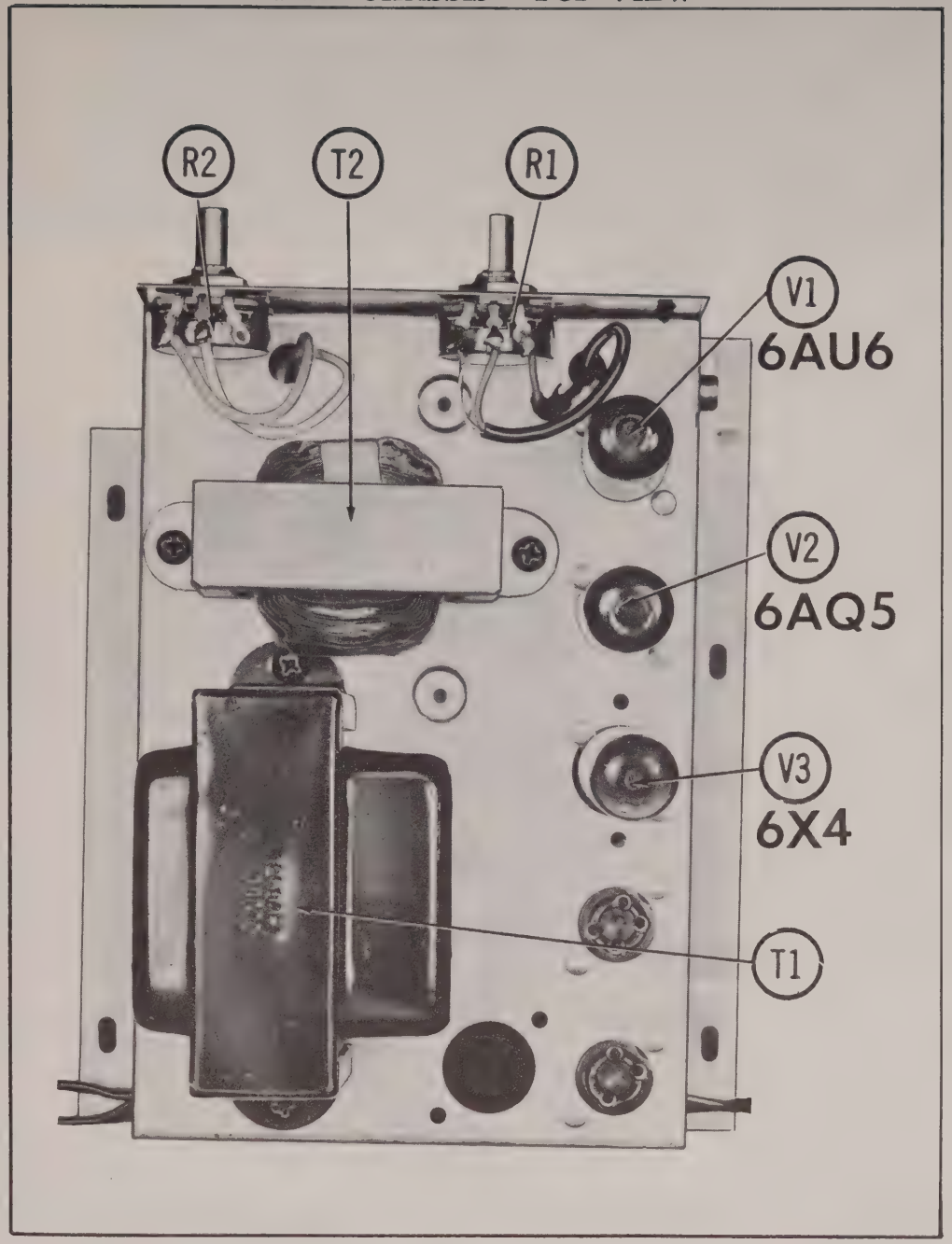
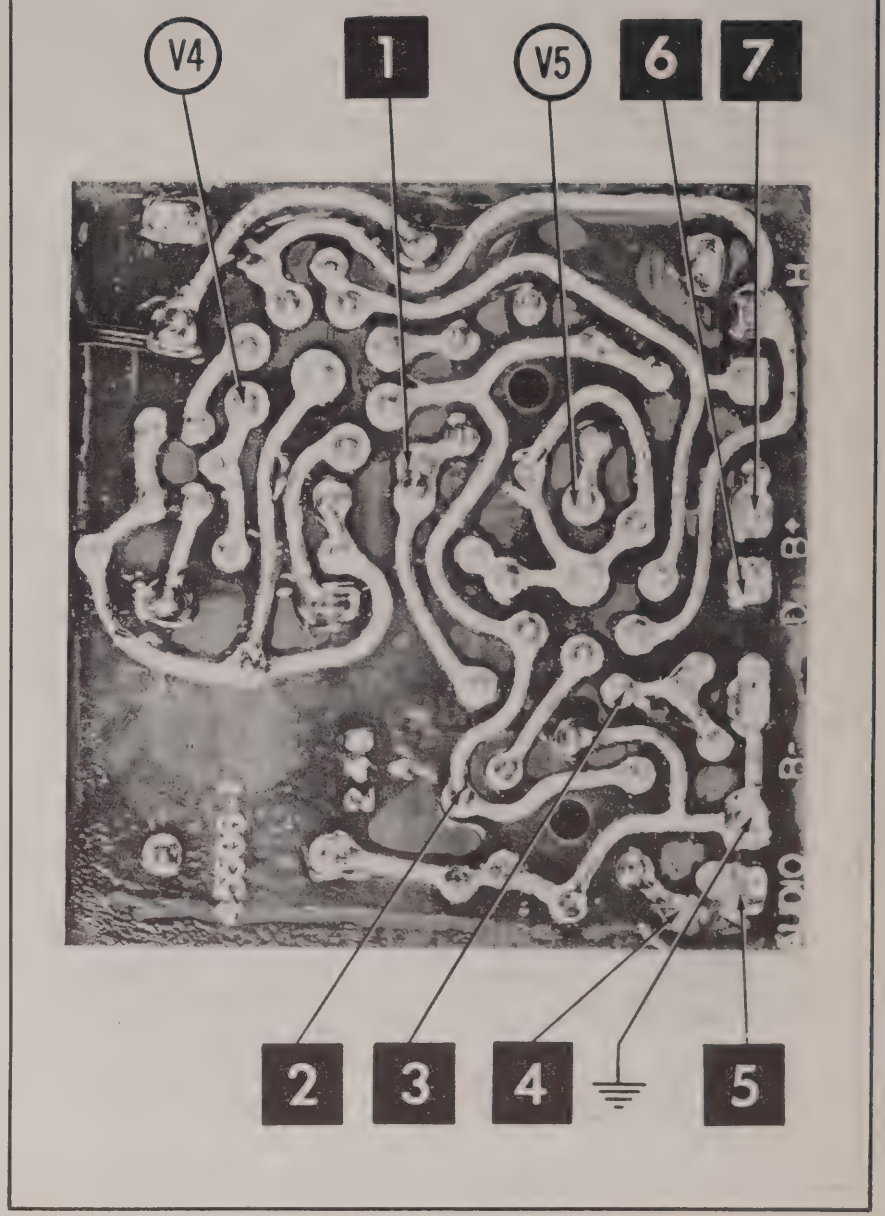
V-M MODEL 1296

AMP CHASSIS - TOP VIEW



PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	V-M PART No.	QUAM PART No.	
SP1	8"	PM	6-8Ω	16756	8A21Z8	
SP2	3"	PM	15Ω	16755	3A15T	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	V-M PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	14900 † 18615-A *	81-T 13-T				† Monaural versions (includes needles) * Stereo versions (includes needles)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		V-M PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295*	17001	1N60	1N295	Detector (Pigtail)

* Some versions may use 1N34A in this application

MISCELLANEOUS

ITEM No.	PART NAME	V-M PART No.	NOTES
M3	Lamp	4654	#47
M4	Lamp	7791	#1847
M5	Tuning Cap	45581	2 Gang
M6	Switch	15120	Tuner-Phono, 3 PDT (Slide Type)
M7	Switch	599	Monaural-Stereo, SPDT (Slide Type)
M8	Switch	16694	Muting, DPST (Leaf Type)
M9	Switch	467	Record Changer, Power-On-Off, SPST
M10	Motor	9134	Phono Drive
	Printed Board	45586-1	

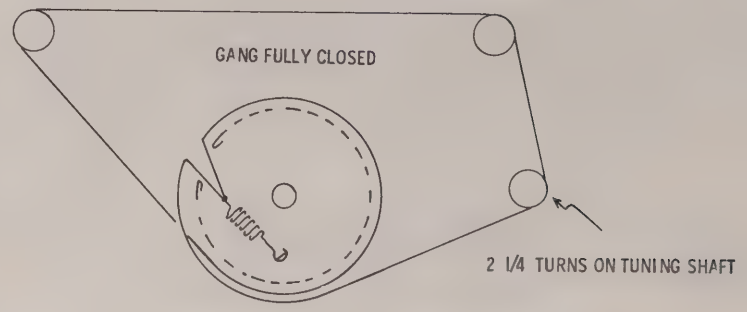
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	16828-A	Control, 3 Used, Used With Blond Cabinets
Knob	16828-B	Control, 3 Used, Used With Mahogany or Walnut Cabinets
Knob	16791-A33	Power On-Off-Reject
Knob	16792-A33	Speed Control
Cabinet	16821-B	Complete, Blond
Cabinet	16821-M	Complete, Mahogany
Cabinet	16821-W	Complete, Walnut

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



DIAL CORD STRINGING

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6AU6	
V2	Output	6AQ5	
V3	Rectifier	6X4	

ITEM No.	USE	TYPE	NOTES
V4	Converter	6BE6	
V5	IF Amplifier	6BA6	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	40	300	12109 ①	PR4-175	XB0254	WQ775		TVAS-3565*	
B	30	300			BR1045				
C	10	300							
C2	8	25VAC	12090	NP-PRS25V10	BBR16-90 †	TCN5010	TD-16-150 †	TVAS-1204.1*	
					BBR16-90		TD-16-150		

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Alternate Part #12086
† Connect Negative Leads Together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	V-M PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	.047	400		12009	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	①
C4	3500			12058	BPD-0033	DD-332	BYA10D33	B-233	5HK-D33	
C5	.047	400		12009	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C6	20000			12114	BPD-02	DD-203	BYB6S2	B-120	5HK-D2	
C7	20000			12114	BPD-02	DD-203	BYB6S2	B-120	5HK-D2	
C8	150		N2200	112115						
C9	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	②

① Stereo versions use 5000mmf in this application (Part #12083)
② Some versions may use 500mmf in this application (Part #12064)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	12354	B-76	A47-2meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	1meg	½	12355	B-70	A47-1meg-Z	Q13-137	U53	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		V-M PART No.	NOTES
	OHMS	WATT		
R3	120K		11233	Note 1
R4	330K		11333	Note 2
R5	680Ω		10693	
R6	47K		11133	Note 3
R7	1meg		11453	
R8	330Ω	2	10615-10	
R9	15K		11013	Note 4
R10	4700Ω		10893	

ITEM No.	RATING		V-M PART No.	NOTES
	OHMS	WATT		
R11	10K	5	12359-10	
R12	15K	1	11014	
R13	150Ω	1	10534-10	
R14	22K		11053	
R15	3.3meg		11573	
R16	100Ω		10495	
R17	47K		11133-10	
R18	1meg		11453	

Note 1. Stero versions use 680K in this application (Part #11413-10)
Note 2. Stero versions use 2.2meg in this application (Part #11533)
Note 3. Not used in stereo versions
Note 4. Stero versions use 120K (Part #11233)

COILS (RF-IF)

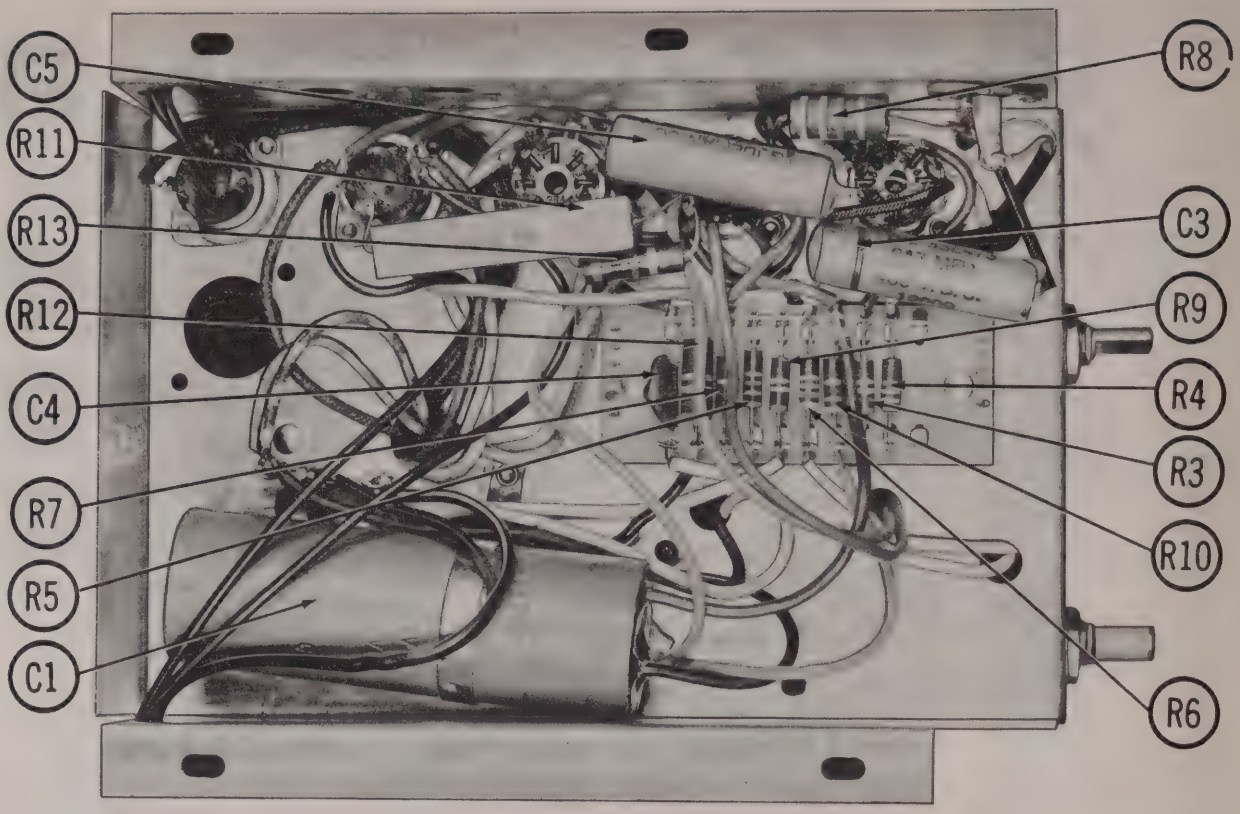
ITEM No.	USE	REPLACEMENT DATA						NOTES
		V-M PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	45534-2						
L2	Osc. Coil	43644-1						
L3	Input IF	44282-1	16-6780	16-6780	BC-356	13-PC1	RF-4	
L4	Output IF	44282-1	16-6780	16-6780	BC-357	13-PC2	RF-4	

TRANSFORMER (POWER)

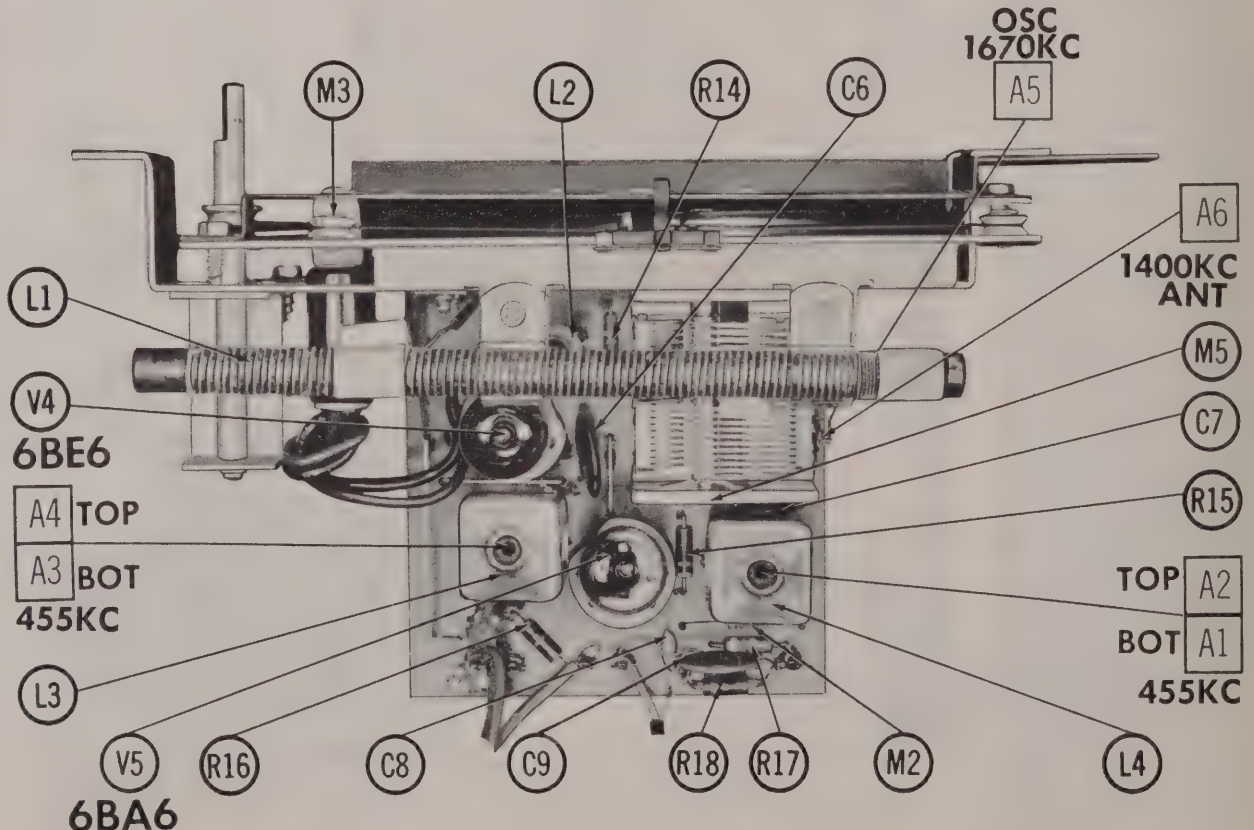
ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .49A	580 VCT @ .070A	6.3V @ .6A	12584						
	SEC. 3	SEC. 4	SEC. 5							
	6.3 VCT @ 1.6A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	V-M PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5100Ω	6-8Ω	12579	22S58	A-2902①	AU-609	A-3849①	22S58	S-55X	① Drill new mounting hole



AMP CHASSIS - BOTTOM VIEW



TUNER CHASSIS

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

WEBCOR MODELS 168, 170, 171, 172

WEBCOR MODELS
168, 170, 171, 172

WEBCOR MODELS
168, 170, 171, 172

GENERAL INFORMATION

Webcor Models 168, 170, 171, 172, 1931, 1941, and 1942 are four-speed automatic changers. Models 170 and 171 are similar, except that the Model 171 has an automatic speed change feature. Models 168, 172, 1931, 1941, and 1942 are stereophonic units. They also have the automatic speed change feature.

Power is applied to the changer and amplifier when the On-Off-Reject knob is placed in the On position. This action also starts the change cycle.

All models operate on 105-120 volts, 60 cycles AC only. Never plug the changer into a DC outlet unless a suitable DC-to-AC converter is used. Direct connection to a DC line will damage the changer motor.

Manufactured by:
Webcor, Incorporated
Chicago, Illinois

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS 6, INDIANA

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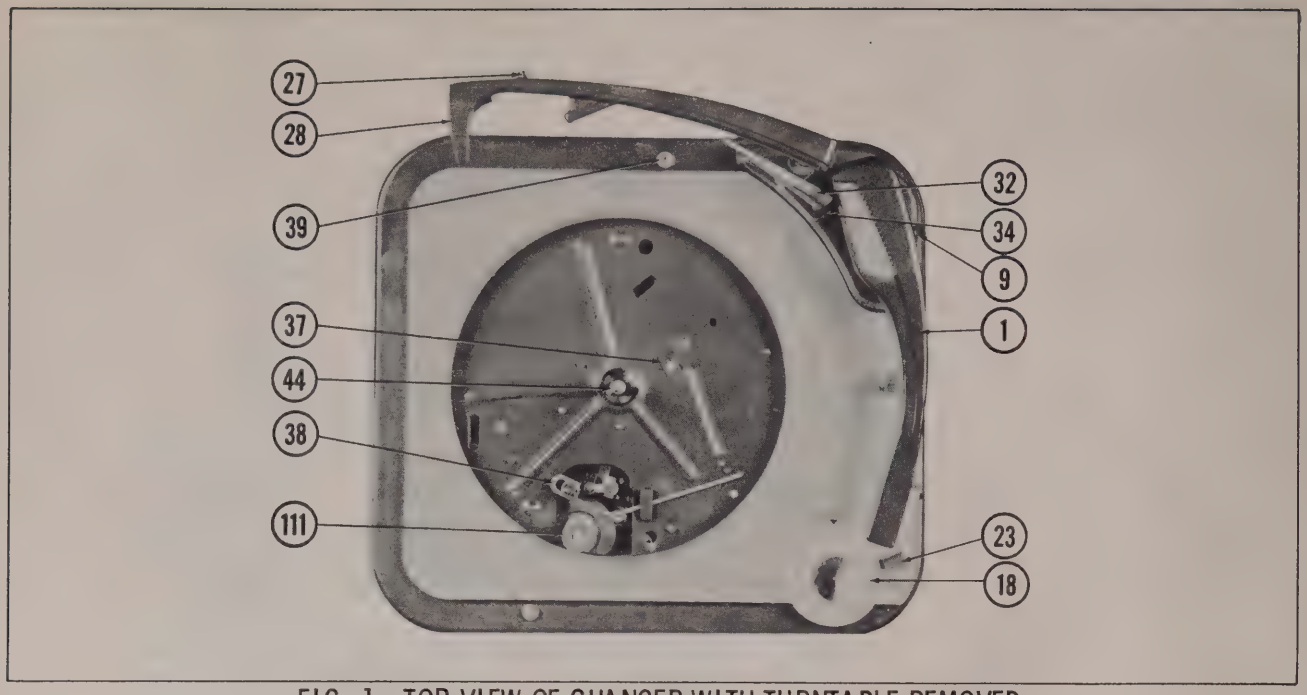


FIG. 1 TOP VIEW OF CHANGER WITH TURNTABLE REMOVED

OPERATING INSTRUCTIONS

Automatic Operation

Move the On-Off-Reject knob to the On position; this applies power to the amplifier and to the changer motor. Lift overarm (28) and swing it away from spindle (44) into the record loading position. Place a stack of records up to one inch high on spindle (44). Return overarm (28) to the record playing position; this action holds the records level on spindle (44).

On the models with a Stereo-Monaural switch, move the switch to Stereo when stereo records are being played, to Monaural when monaural records are being played.

Models 168, 171, 172, 1931, 1941, and 1942 feature an automatic speed changer which permits 33 1/3-and 45-rpm records to be intermixed. When intermixing 33 1/3-and 45-rpm records, turn the needle selector to LP and the Speed Control knob to either the 33 or 45 position. The automatic speed changer will then select the correct speed.

On the Model 170 (which has no automatic speed changer), turn the Speed Control knob to 45 for 45-rpm records, to 33 for 33 1/3-rpm records. Turn the needle selector to the LP position.

When intermixing 10- and 12-inch 78-rpm records, turn the needle selector to 78 and the Speed Control knob to the 78 position.

To play 16 2/3-rpm records, turn the needle selector to LP and the Speed Control knob (18) to the 16 position.

CAUTION: Before operating the changer, unlock tone arm (1) from tone arm rest (24).

Move the On-Off-Reject knob momentarily to the Reject position. The changer automatically goes into the change cycle by dropping the first record to the turntable and bringing tone arm (1) into the correct playing position. After the last record has been played, tone arm (1) will set down on tone arm rest (24) and the changer will shut off automatically.

Manual Operation

Single records can be played manually. When operating the changer manually, place the record on the turntable and set the Speed Control knob to the desired speed. Turn the needle selector on tone arm (1) to either the 78 or the LP position. Move the On-Off-Reject knob to the On position. Place tone arm (1) on the lead-in groove of the record. After the record has been played, place tone arm (1) on tone arm rest (24) and move the On-Off-Reject knob to the Off position.

NOTE: When the changer is shut off (either manually or automatically), idler wheel (111) is disengaged from the motor shaft; thus, flat spots are prevented from forming on the surface of idler wheel (111).

DISASSEMBLY INSTRUCTIONS

Before removing the changer from the pad or cabinet, remove the AC cord from the wall outlet and lock tone arm (1) on tone arm rest (24) to prevent damage to tone arm (1). Turn down the two mounting screws (39) until they are flush with the changer baseplate.

To remove the changer from the pan or cabinet, remove the back panel or cover. Disconnect the power-input leads and the pickup leads. Place the two changer speed clips (109) in the vertical position. The changer can now be lifted out of the pan or cabinet.

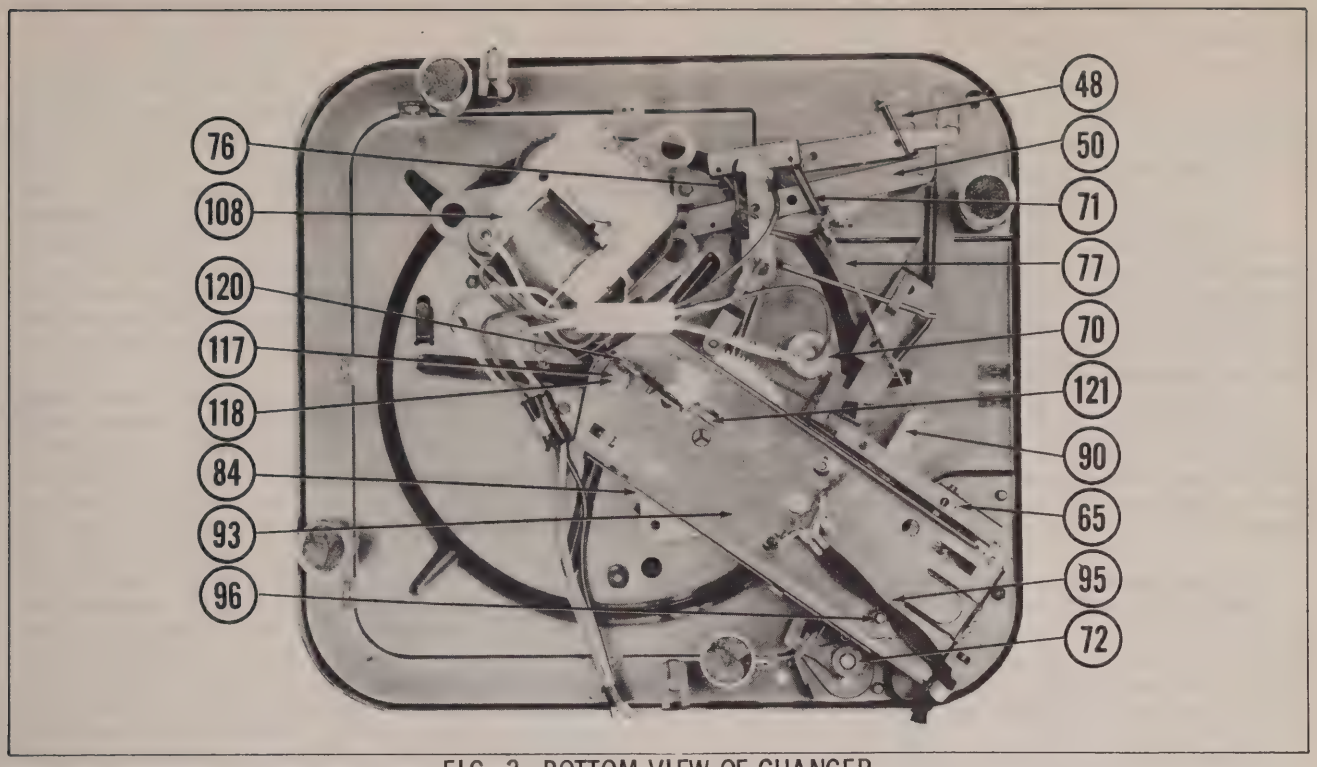


FIG. 2 BOTTOM VIEW OF CHANGER

CHANGE CYCLE

Observe the change cycle by manually rotating the turntable. The following action can then be readily observed, and the function of each part can be more easily understood.

The automatic trip mechanism operates on the velocity trip principle. The mechanism does not operate until tone arm (1), moving inward, reaches the lead-out groove at the end of a record.

The inward movement of tone arm (1) causes trip rod (61) to move trip lever (84A) toward the turntable hub. Projection (A) on the turntable hub engages trip lever (84A) and rotates the sections without teeth on cam gear (84) past the turntable gear. The turntable gear engages cam gear, (84), and the change cycle is started.

While the record is playing, tone arm (1) moves slowly across the record toward spindle (44). At the same time, bracket hub and stud assembly (62) moves trip rod and weight assembly (61) toward trip lever (84A) on cam gear (84). Just before the record is finished playing, trip rod and weight assembly (61) moves trip lever (84A) toward turntable projection (A) on the turntable hub. During each revolution of the turntable, projection (A) on the turntable hub moves trip lever and weight assembly (61) backward and out of the way, so that the change cycle does not occur prematurely. The foregoing action is due to the slight incline of projection(A) and the slow inward movement of tone arm (1) while the record is playing. When tone arm (1) enters the lead-out grooves, trip rod and weight assembly (61) moves trip lever (84A) far enough to engage the leading edge on turntable projection (A). This action is due to the accelerated motion of tone arm (1) when it enters the lead-out grooves.

Projection (A) drives against trip lever (84A) and rotates the section without teeth on cam gear (84) past the turntable gear. The turntable gear meshes with cam gear (84), and the change cycle is started.

Cam gear (84) rotates counterclockwise. The long stud on cam gear (84) slides cam plate assembly (92) toward bracket hub and stud assembly (62). The finger on cam plate assembly (92) slides under tone arm base assembly (14) and lifts tone arm (1) off the record. Since tone arm (1) is near spindle (44) and not over tone arm rest (24), the stud on bracket hub and stud assembly (62) is directly underneath cam lever latch (89). As tone arm (1) is raised by the finger on cam plate assembly (92), bracket hub and stud assembly (62) enters the slot in cam lever latch (89). The long stud on cam gear (84) engages cam lever and arm assembly (90) and rotates it away from cam gear (84). Cam lever latch (89) pulls tone arm (1) over tone arm rest (24).

The cam on cam gear (84) rotates spindle lever (120). Spindle lever (120) drives the spindle plunger into spindle (44). The spindle plunger slides the push rod and slide assembly against the record push-off pawl. After the push rod and slide assembly slides the record push-off pawl against the spindle pawl, the assembly then moves the record push-off pawl into spindle (44). The spindle pawl clears the bottom record, and the record push-off pawl pushes the bottom record off the spindle step.

Just before tone arm (1) starts to move toward spindle (44), spindle roller (121) reaches the crest of the cam on cam gear (84). The push rod and slide assembly moves the record push-off pawl to its maximum travel in spindle (44). The record push-off pawl slides the bottom record off the spindle step, and the record drops to the turntable.

Tone arm (1) moves toward spindle (44), and spindle roller (121) moves off the crest of the cam on cam gear (84). The push rod and slide assembly, which is spring loaded, will then slide to its original position. The record push-off pawl, which also is spring loaded, moves out of spindle (44). The spindle pawl guides the next record onto the spindle step.

Tone arm setdown for 7-, 10-, and 12-inch records is determined by semaphore (32) and 12-inch feeler (34). The plunger (122) on cam lever and arm assembly (90) moves semaphore (32) toward spindle (44). When the tip of semaphore (32) is approximately 4 5/8 inches from spindle (44), stop plate (95) on the shaft of semaphore (32) stops semaphore (32). Compression spring (96) on the shaft of semaphore (32) lowers semaphore (32) when cam lever and arm assembly (90) moves from underneath the finger of record size bracket assembly (82). The finger of record size bracket assembly (82) can now engage the 7-inch position on cam lever and arm assembly (90).

When spindle roller (121) reaches the crest of the cam on cam gear (84), a record drops to the turntable. A 7-inch record will not deflect semaphore (32). The finger of record size bracket assembly (82) therefore will stay in position and will engage the 7-inch position on cam lever and arm assembly (90).

When a 10-inch record drops to the turntable, semaphore (32) will be deflected toward the rear of the changer. The finger of record size bracket assembly (82) now engages the 10-inch position on cam lever and arm assembly (90).

When a 12-inch record drops to the turntable, semaphore (32) and 12-inch feeler (34) will be deflected toward the rear of the changer. Twelve-inch feeler (34) is then disengaged from the groove on the shaft of semaphore (32). Semaphore (32) is lowered, and the finger on record size bracket assembly (82) engages the 12-inch position on cam lever and arm assembly (90).

The long stud on cam gear (84) now enters the large curve on cam lever and arm assembly (90). This assembly rotates toward the finger on record size bracket assembly (82). Cam lever latch (89) now moves tone arm (1) toward spindle (44). Tone arm (1) stops when the finger on record size bracket assembly (82) engages the 7-, 10-, or 12-inch position on cam lever and arm assembly (90). The position in which the finger on record size bracket assembly (82) engages cam lever and arm assembly (90) determines the distance tone arm (1) is moved toward spindle (44).

The long stud on cam gear (84), after being disengaged from cam lever and arm assembly (90), engages cam plate assembly (92) and moves it toward spindle (44). The finger on cam plate assembly (92) then lowers tone arm (1). When the needle contacts the record lead-in groove, the short stud on cam gear (84) engages cam lever and arm assembly (90) and rotates it away from the finger on record size bracket assembly (82). When the short stud on cam gear (84) enters the recessed section on cam lever and arm assembly (90), the assembly rotates toward the finger of record size bracket assembly (82). The long stud now slides cam plate assembly (92) to its maximum travel toward spindle (44). Lift tab (B) on cam plate assembly (92) slides under record size bracket assembly (82). The finger of record size bracket assembly (82) is lifted, and clears cam lever and arm assembly (90) as it rotates toward the finger.

Just before the short stud on cam gear (84) is disengaged from cam lever and arm assembly (90), spring-loaded plunger (122) moves semaphore (32) clockwise toward the rear. The section without teeth on cam gear (84) rotates into the out-of-cycle position. The turntable gear is disengaged from cam gear (84), and the change cycle ends.

AUTOMATIC SHUTOFF

Overarm (28) lowers past the offset shelf on spindle (44) after the last record drops to the turntable and tone arm (1) sets down on the last record. Overarm guide (72) rotates lockout pawl (124), which engages latch retainer (88) on cam lever latch (89).

After the last record has finished playing, the trip mechanism starts a change cycle. The finger on cam plate assembly (92) lifts tone arm (1) off the record. Cam lever latch (89) moves tone arm (1) over tone arm rest (24). The locking pawl (124) tilts cam lever latch (89) upward. When the long stud on cam gear (84) enters the large curve on cam lever and arm assembly (90), the assembly rotates toward cam gear (84). Lockout pawl (124) causes cam lever latch (89) to clear the stud on bracket hub and stud assembly (62). Therefore, cam lever latch (89) does not move tone arm (1) toward spindle (44).

The long stud on cam gear (84) engages cam plate assembly (92) and slides it toward spindle (44). The finger on cam plate assembly (92) slides from underneath the tone arm shaft. Tone arm (1) is thus lowered on tone arm rest (24). The finger on bracket hub and stud assembly (62) pivots switch shutoff lever (65), which lifts shutoff arm (90A). The short stud on cam gear (84) rotates cam lever and arm assembly (90). Shutoff lever (65) pulls back and clears the tab on reject strap and trip spring assembly (53). When the short stud on cam gear (84) enters the recessed portion, cam lever and arm assembly (90) rotates toward cam gear (84). Cam lever and arm assembly (90) drives the shutoff arm against the tab on reject strap and trip spring assembly (53). The tap on reject strap and trip spring assembly (53) trips the on-off switch to the off position, and the assembly moves the On-Off-Reject knob to the Off position.

AUTOMATIC SPEED CHANGE

Automatic speed change occurs when 33 1/3-and 45-rpm records are intermixed and the Speed Control knob is in either the 33 or 45 position.

When the change cycle is initiated, the turntable gear rotates cam gear (84) counterclockwise. The long stud on cam gear (84) slides cam plate assembly

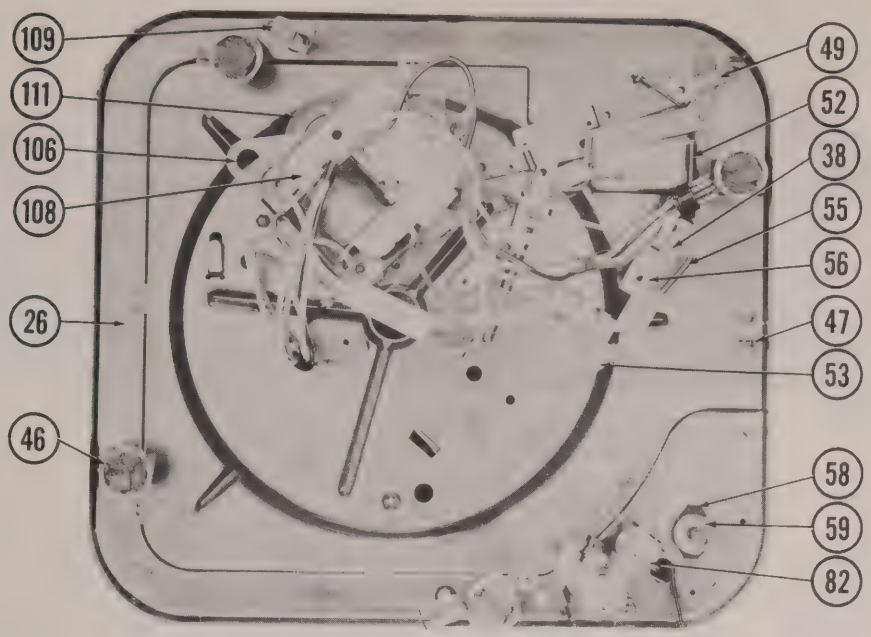


FIG. 3 BOTTOM VIEW OF CHANGER WITH SLIDE MECHANISM REMOVED

(92) toward bracket hub and stud assembly (62). The finger on cam plate assembly (92) slides underneath the tone arm shaft and lifts tone arm (1) off tone arm rest (24).

The long stud on cam gear (84) rotates cam lever and arm assembly (90) away from the finger on record size bracket assembly (82). Plunger (122), on cam lever and arm assembly (90), positions record size bracket assembly (82) so that the 7-inch position on cam lever and arm assembly (90) is engaged. At the same time, cam lever and arm assembly (90) releases its tension on cam lever link (77). Cam lever link (77) allows spring-loaded extension arm (49) to contact the short finger on speed selector bracket (48).

Just before tone arm (1) moves toward spindle (44), spindle roller (121) reaches the crest of the cam gear (84), and a record drops to the turntable. A 7-inch 45-rpm record will not strike semaphore (32), and record size and bracket assembly (82) will stay in position to engage the 7-inch position on cam lever and arm assembly (90). A 10-inch 33 1/3-rpm record will deflect semaphore (32) and the finger on record size bracket assembly (82) will be positioned to engage the 10-inch position on cam lever and arm assembly (90). A 12-inch 33 1/3-rpm record will deflect semaphore (32) and 12-inch feeler (34). The finger of record size bracket assembly (82) is positioned to engage the 12-inch position on cam lever and arm assembly (90).

When the long stud on cam gear (84) enters the large curve on cam lever and arm assembly (90), the assembly rotates toward the finger on record size bracket assembly (82). At the same time, cam lever latch (89) moves tone arm (1) toward spindle (44). Cam lever and arm assembly (90) stops when the finger on record size bracket assembly (82) engages the 7-, 10-, or 12-inch position on cam lever and arm assembly (90).

If the finger on record size bracket assembly (82) engages the 7-inch position, cam lever and arm assembly (90) pulls cam lever link (77). Cam lever link (77) pulls extension arm (49) against the long finger on the speed selector bracket (48). If the finger on record size bracket assembly (82) engages either the 10- or 12-inch position, cam lever and arm assembly (90) does not rotate enough to pull cam lever link (77). Extension arm (49) still contacts the short finger on speed selector bracket (48).

The long stud on cam gear (84) then engages cam plate assembly (92) and slides it toward spindle (44). This action lowers tone arm (1) onto the record. At the same time, if the Speed Control knob (18) is in the 33 position and if the finger on record size bracket assembly (82) engages the 7-inch position, cam plate assembly (92) will drive extension arm (49) against the long finger on speed selector bracket (48). Extension arm (49) turns the Speed Control knob (18) to the 45 position.

If the Speed Control knob (18) is in the 45 position and if the finger on record size bracket assembly (82) engages either the 10- or 12-inch position, cam plate assembly (92) drives extension arm (49) against the short finger on speed selector bracket (48). Extension arm (49) turns the Speed Control knob (18) to the 33 position.

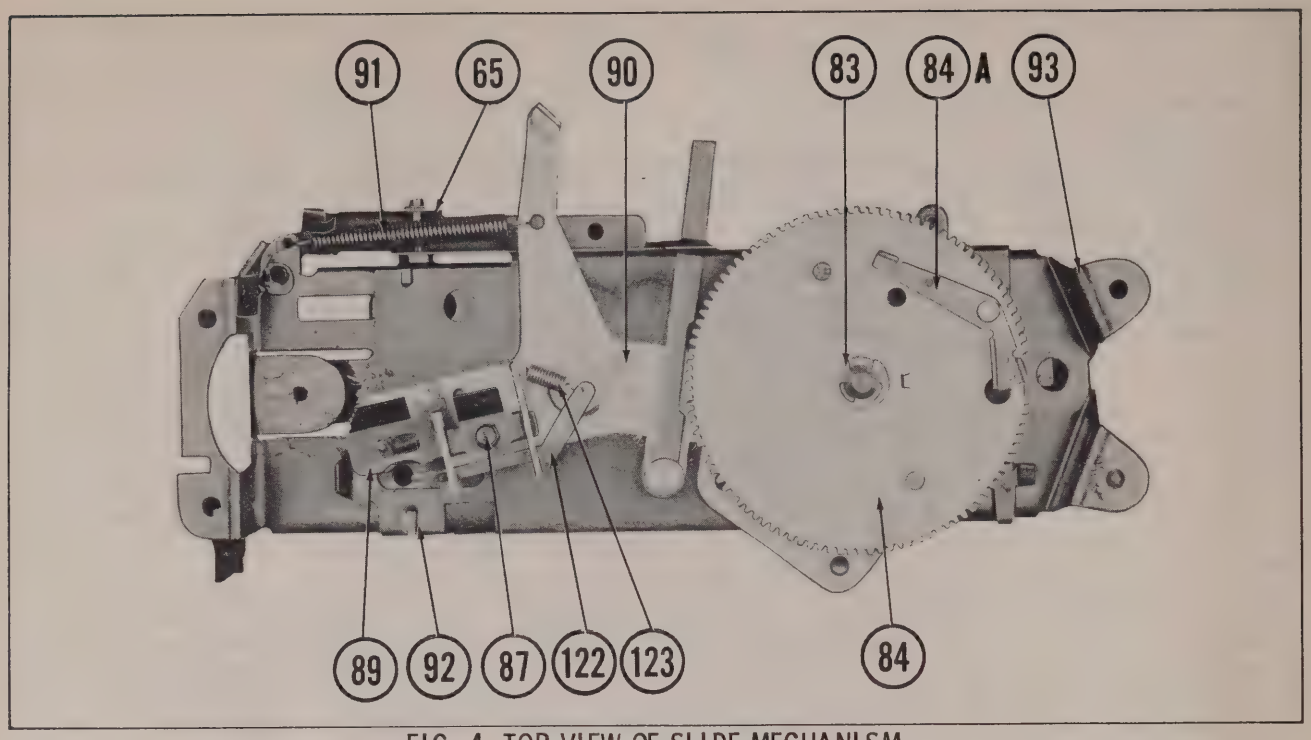


FIG. 4 TOP VIEW OF SLIDE MECHANISM

ADJUSTMENTS

Tone Arm Setdown Adjustment

The tone arm setdown should be made with a 7-inch 45-rpm record because the setdown is more critical on this type of record; therefore, a better setdown adjustment can be obtained.

Lift tone arm (1) to its vertical position. Turn setdown adjustment screw (36) until the setdown is correct, counterclockwise to move tone arm (1) away from spindle (44) or clockwise to move tone arm (1) toward spindle (44).

Needle Pressure Adjustment

The needle pressure, measured with a gram scale, should be 8 to 11 grams for a monaural cartridge and 5 to 7 grams for a stereo cartridge. Insert a small steel rod or a #4 bristol spline key into the mounting stud hole in tone arm counterbalance assembly (11). Rotate the mounting stud clockwise to decrease the needle pressure, counterclockwise to increase the needle pressure. Only a slight movement of the mounting stud is required.

Tone Arm Height Adjustment

When the tone arm is at its maximum height during the change cycle, the needle should just clear a one-inch stack of records on the turntable.

Remove the AC cord from the wall outlet. Place overarm (28) in the record load position. Cycle the changer by momentarily moving the On-Off-Reject knob to Reject and by manually rotating the turntable clockwise until tone arm (1) travels outward to the edge of the turntable. Lift tone arm (1). Turn height adjustment screw (17) clockwise to raise tone arm (1) or counterclockwise to lower tone arm (1).

Spindle Adjustment

If spindle (44) or spindle roller (121) is replaced, spindle (44) must be adjusted. The records will not drop to the turntable during automatic operation unless spindle (44) is adjusted correctly.

Remove the changer from its case (see Disassembly Instructions) before adjusting the spindle. Place overarm (28) in the record play position. Cycle the changer by momentarily moving the On-Off-Reject knob to Reject and by manually rotating the turntable until spindle roller (121) is on the top crest of the cam on cam gear (84). Tone arm (1) will then be positioned directly over tone arm rest (24).

Insert a 3/16-inch diameter rod into the positioning hole on the subassembly to hold the cam in position. Spindle roller (121) now cannot roll off the crest of the cam on cam gear (84) while adjustments are being made.

Loosen hex nut (118) on spindle adjustment screw (117). Using a slab-head wrench, turn spindle adjustment screw (117) clockwise until the record push-off pawl reaches its maximum travel within spindle (44). Tighten hex nut (118) after the adjustment has been made.

CAUTION: Once the record push-off pawl has reached its maximum travel within spindle (44), do not continue turning spindle adjustment (117) because spindle (44) will be damaged.

Place a record on spindle (44), and manually cycle the changer. If the adjustment is correct, the record will drop to the turntable when tone arm (1) is over tone arm rest (24).

Automatic-Manual Adjustment

Trip rod and weight assembly (61) starts the automatic change cycle during automatic record and speed change operation. During manual operation, the movement of trip rod and weight assembly (61) is delayed by automatic-manual adjustment screw (69). This delay prevents the changer from going into an automatic change cycle when tone arm (1) is manually placed on a record.

If trip rod and weight assembly (61) is replaced, the automatic-manual operation may have to be adjusted. If this adjustment is incorrect, the changer will cycle automatically while it is being operated manually. Remove the changer from its case (see Disassembly Instructions) before making the automatic-manual adjustment. After removing the changer, place overarm (28) in the record play position.

Cycle the changer by momentarily moving the On-Off-Reject knob to Reject and by manually rotating the turntable clockwise until the changer goes into the out-of-cycle position and tone arm (1) rests on tone arm rest (24). The weighted end of trip rod and weight assembly (61) now is directly over automatic-manual adjustment screw (69). Turn screw (69) until it contacts the weighted end of trip rod and weight assembly (61).

Move tone arm (1) toward spindle (44). The movement of trip rod and weight assembly (61) is delayed by adjustment screw (69). Return tone arm (1) to tone arm rest (24). Trip rod and weight assembly (61) then repositions itself over adjustment screw (69).

Idler Wheel Height Adjustment

When the unit is changing speeds, idler wheel (111) is raised or lowered to engage the correct position on the motor shaft without touching the next step. If idler wheel (111) is too high or too low, it will not properly engage the motor shaft. As a result, the playing speed will be incorrect.

Remove the AC cord from the wall outlet. Remove the turntable to expose idler wheel (111). Turn the Speed Selector knob (18) to the 16 position, and move the On-Off-Reject knob to On. Idler wheel (111) now engages the 16 2/3-rpm position (small diameter) on the motor shaft.

Turn connecting link adjustment nut (100) until idler wheel (111) engages the 16 2/3-rpm position on the motor shaft and clears the 33 1/3-rpm step. Turn connecting link adjustment nut (100) clockwise to raise idler wheel (111), counterclockwise to lower idler wheel (111).

Semaphore Adjustment

Semaphore (32) determines the correct tone arm setdown and speed change for 7- and 10-inch records. Semaphore (32) and 12-inch feeler (34) determine the tone arm setdown for 12-inch records.

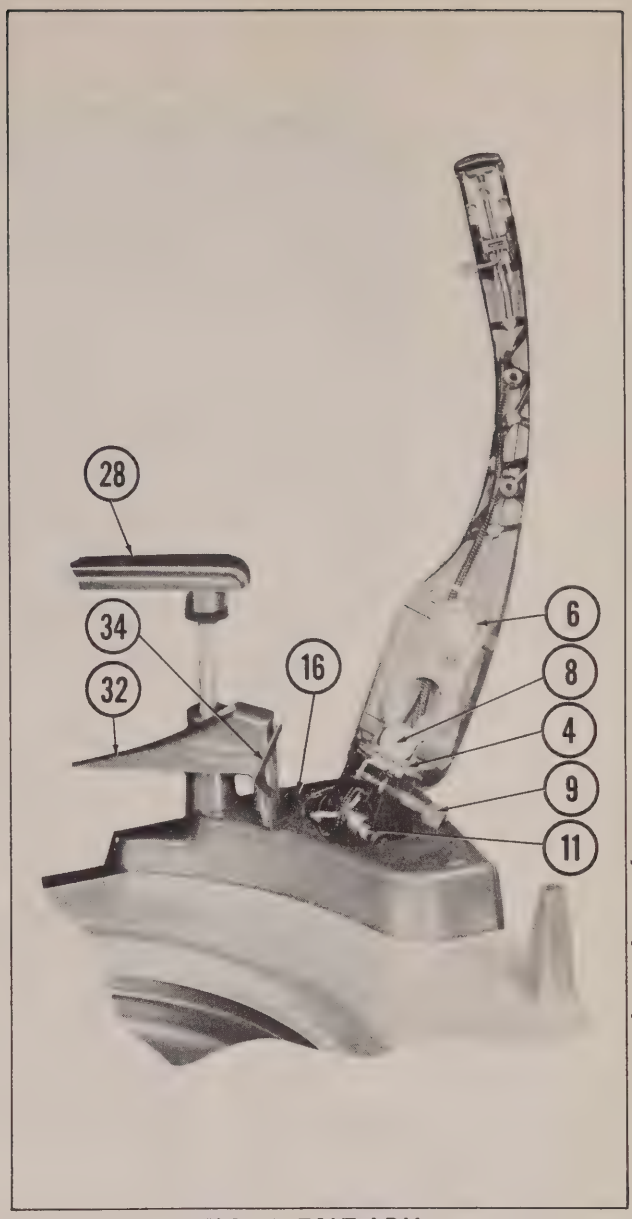
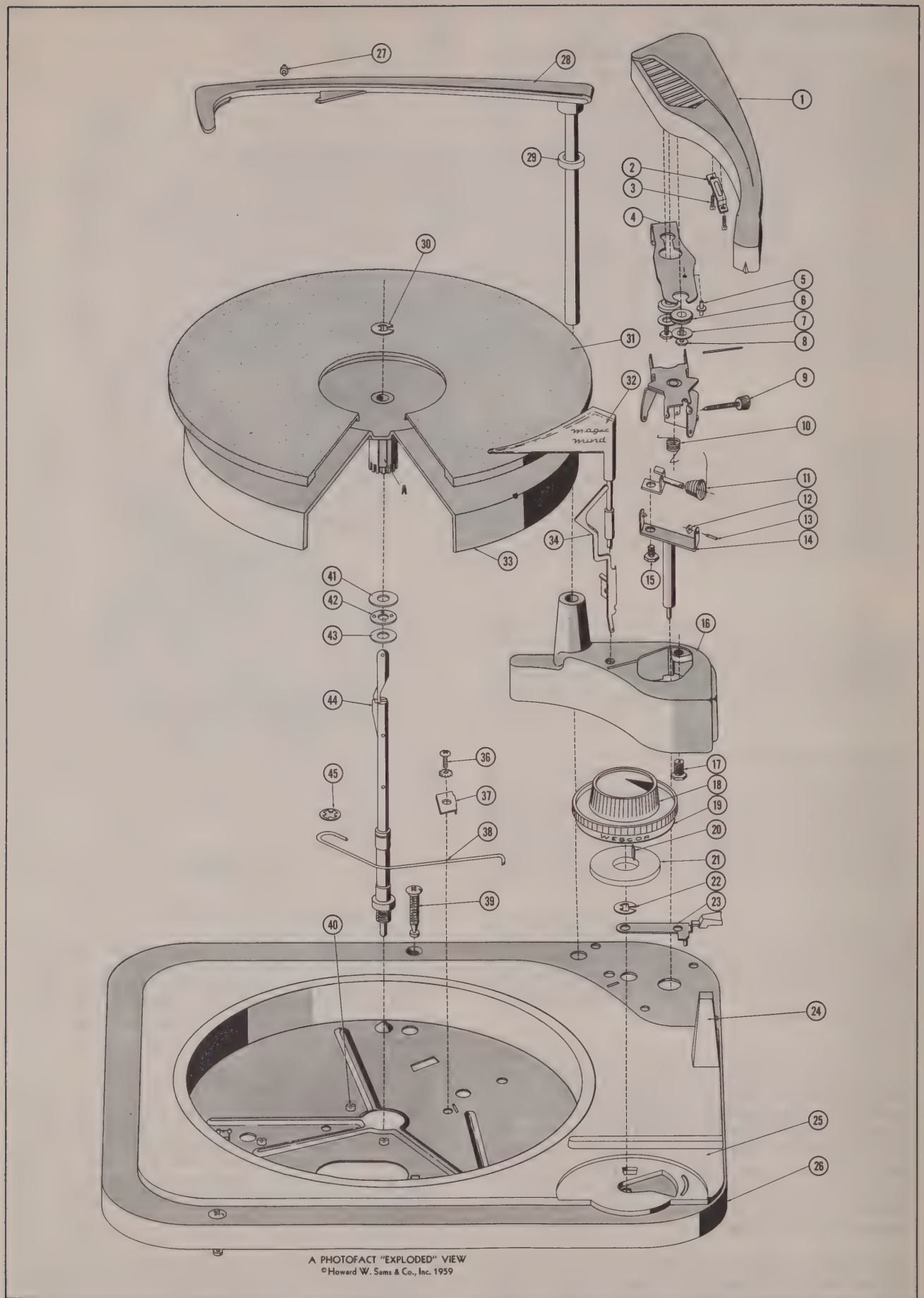


FIG. 5 TONE ARM

Semaphore (32) must be correctly positioned with respect to spindle (44). Otherwise, semaphore (32) will be deflected incorrectly by the different sizes of records as they drop to the turntable. As a result, the tone arm setdown and the speed change will be incorrect.

Remove the changer from the pan or cabinet (see Disassembly Instructions). Place overarm (28) in the record load position. Cycle the changer by momentarily moving the On-Off-Reject knob to Reject and by manually rotating the turntable clockwise until tone arm (1) travels to the edge of the turntable. Position record size bracket assembly (82) in the 7-inch position on cam lever and arm assembly (90).

Loosen slab-head set screw (81) in record size bracket assembly (82). Position the tip of semaphore (32) 4 5/8 inches from spindle (44). Tighten slab-head screw (81) in record size bracket assembly (82).



A PHOTOFACT "EXPLODED" VIEW
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FIG. 6A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

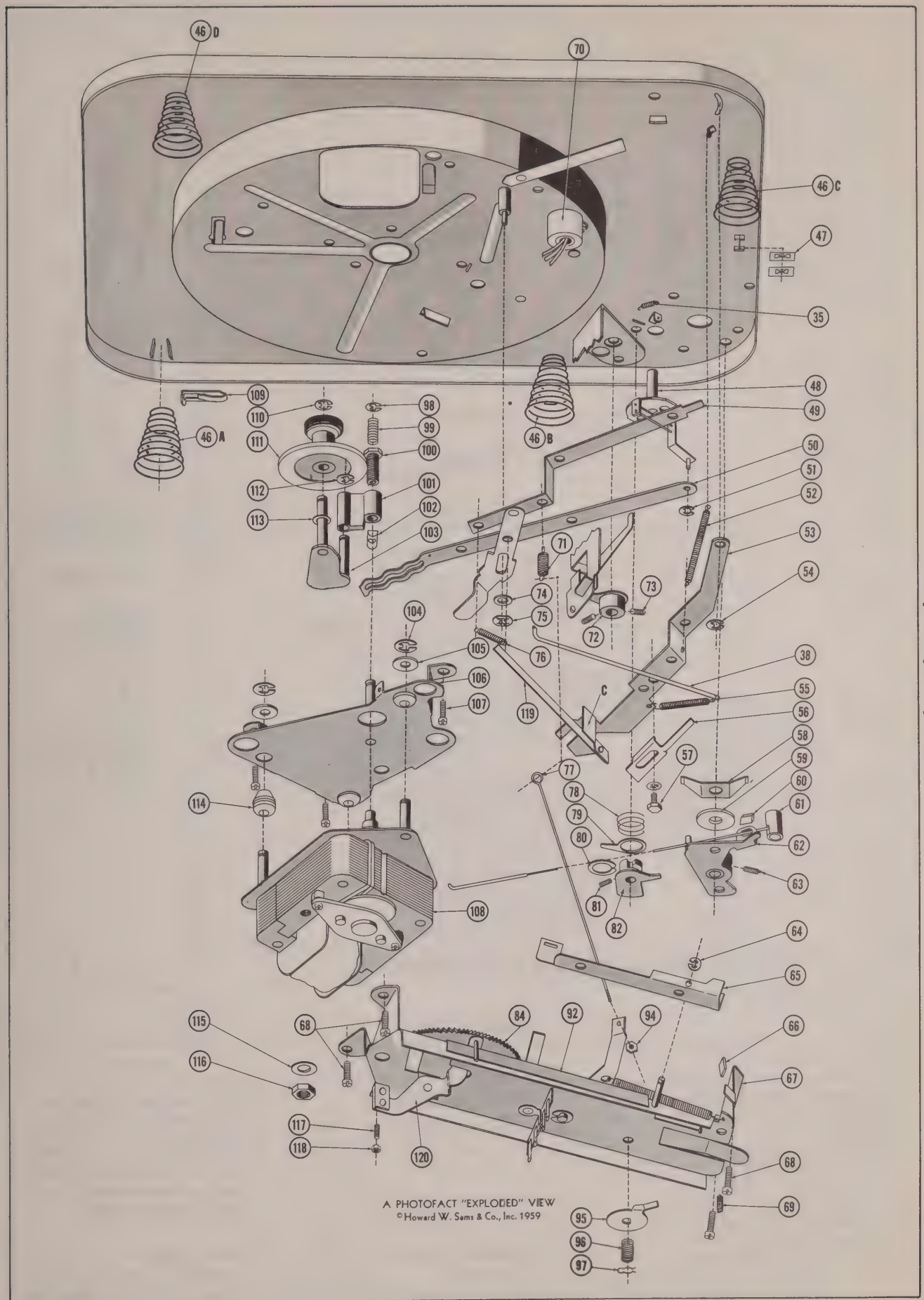


FIG. 6B EXPLODED VIEW OF PARTS BELOW BASEPLATE

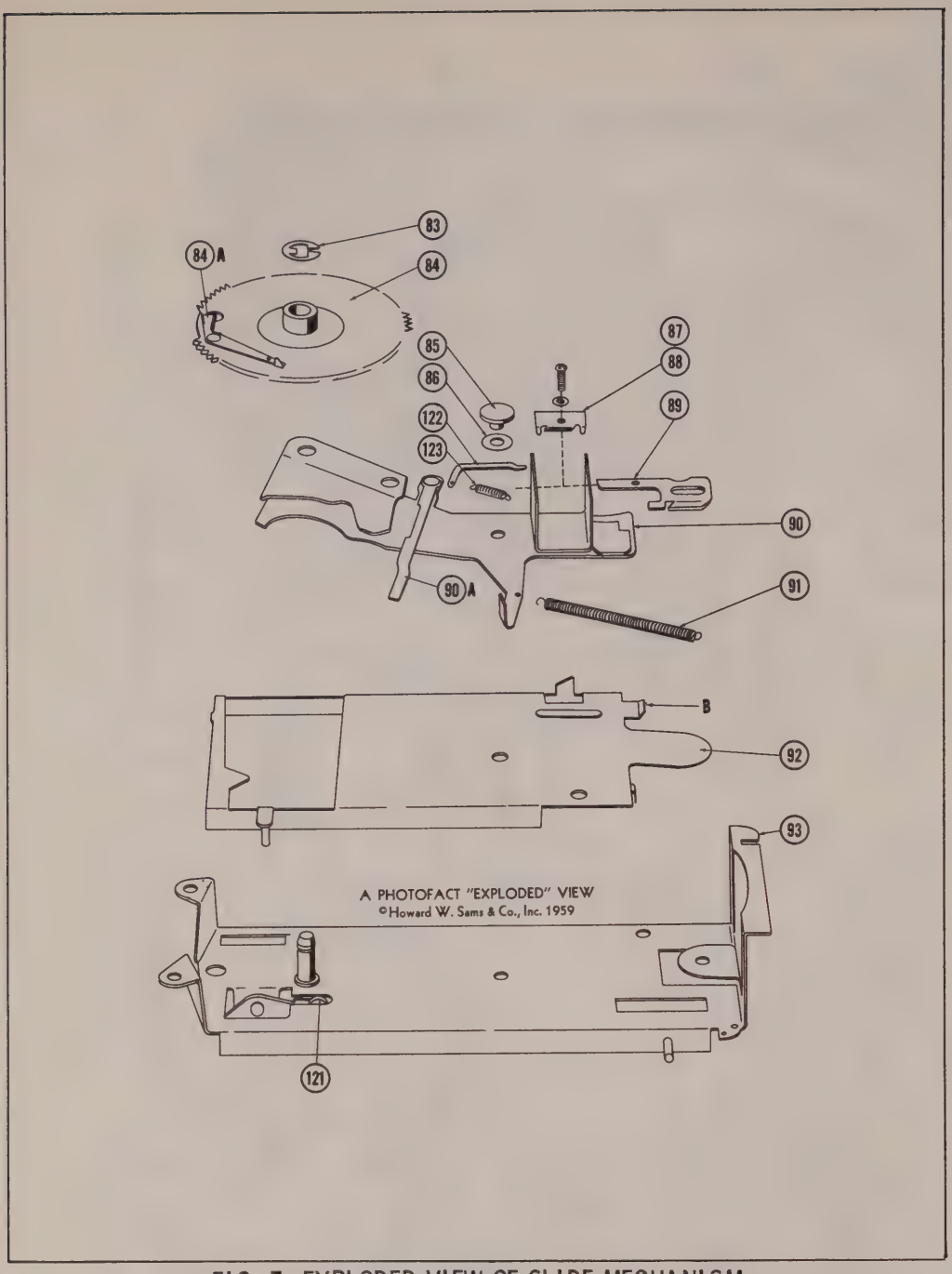


FIG. 7 EXPLODED VIEW OF SLIDE MECHANISM

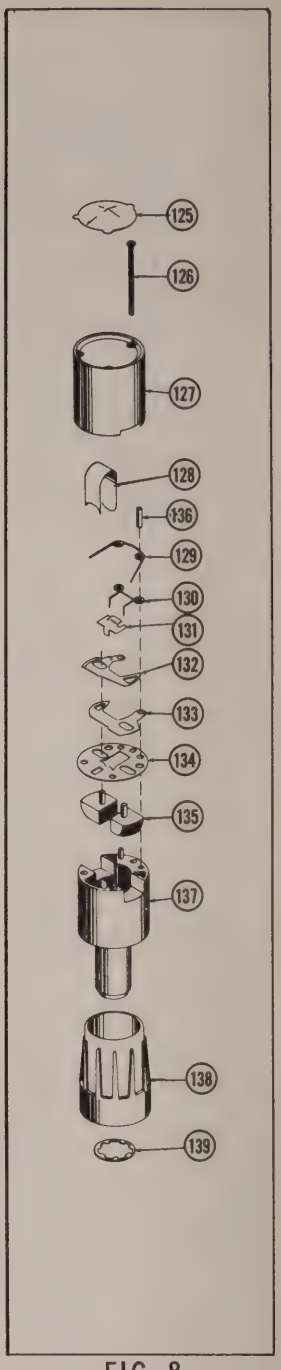


FIG. 8.
45RPM SPINDLE

TROUBLE CHART

Symptom	Cause	Remedy
Turntable does not revolve when On-Off-Reject knob is moved to On position.	1. No current at motor.	1. (a) Check to see if current is reaching AC leads of changer. (b) Check the On-Off switch and motor wiring with an ohmmeter. Correct wiring if defective.
	2. Motor binds or is defective.	2. With changer in the Off position, remove turntable to allow motor to operate without load.

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
		Manually rotate motor rotor shaft. It should rotate freely. If it is binding, check for foreign matter. Turn changer on. Rotor shaft should rotate if motor is not defective.
	3. Idler wheel (111) defective, dirty, or binding.	3. Check rubber surfaces of idler wheel (111) for wear or for grease or oil. Remove any grease or oil with alcohol. Manually rotate idler wheel (111) to check for binding.
	4. Turntable binds.	4. Spin the turntable in the out-of-cycle position. The turntable should spin freely for a few seconds if no binding exists. If binding exists, check for foreign matter. Clean and lubricate.
Turntable stalls or slows down during change cycle.	1. Low line voltage.	1. Check line voltage, which should be at least 105 volts.
	2. Oil or grease on rubber surfaces of idler wheel (111) or on turntable rim.	2. Clean rubber surfaces of idler wheel (111) and inner turntable rim with alcohol.
	3. Idler wheel (111) worn or defective.	3. Replace idler wheel (111).
	4. Automatic speed changer binds when changing from 45 to 33 1/3 rpm.	4. Eliminate any binds in speed selector bracket (48) or extension arm and link assembly (49).
	5. Record size bracket assembly(82)does not climb lift tab (B) on cam plate assembly (92). This condition may be encountered when record size bracket assembly (82) is defective or loose on semaphore and shaft assembly (32).	5. Adjust the semaphore (see "Semaphore Adjustments") if record size bracket assembly (82) is loose on semaphore shaft (32). Replace record size bracket assembly (82) if its lower leading edge binds against lift tab (B). This condition will occur if the lower leading edge of record size bracket assembly (82) is not sufficiently rounded.
Record does not drop.	1. Incorrect spindle (44) adjustment.	1. Readjust spindle (see "Spindle Adjustment").
	2. Defective spindle (44).	2. Repair or replace spindle (44).
More than one record drops at a time.	1. Bent overarm (28).	1. Check position of records on spindle (44) with overarm (28) in the Play position. If records tilt, overarm (28) is bent, and must be straightened or replaced.
	2. Defective spindle (44).	2. Repair or replace spindle (44).

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
Changer does not cycle when On-Off-Reject knob is moved to Reject.	1. Trip spring (53) not sufficiently bent toward cam gear (84); trip spring (53) broken.	1. Slightly bend trip spring (53) toward cam gear (84). Replace reject strap and trip spring assembly (53) if broken.
	2. Trip lever (84A) bent, or binds on cam gear (84).	2. Remove any foreign matter that may be preventing trip lever (84A) from operating properly. Straighten trip lever (84A) if it is bent.
	3. Tension spring (91) loose or broken.	3. Replace or remount tension spring (91).
No sound.	1. Defective cartridge.	1. Replace cartridge.
	2. Defective wiring.	2. Check wiring between cartridge terminals and output plug with an ohmmeter.
	3. Defective amplifier.	3. Check phonograph amplifier and speaker.
Recorded sound distorted.	1. Worn or defective needle.	1. Replace needle.
	2. Defective cartridge.	2. Replace cartridge.
	3. Incorrect needle pressure.	3. Adjust needle pressure (see "Needle Pressure Adjustment").
Last record repeats.	1. Overarm (28) binds.	1. If overarm (28) does not set down on overarm housing (16) when no records are on spindle (44), check for bent overarm shaft or for dirt inside shaft housing.
Tone arm sets down on tone arm rest (24) during change cycle.	1. Binding lockout pawl (124) or binding cam lever latch (89).	1. Eliminate binding.
	2. Loose bracket hub and stud assembly (62) on tone arm shaft.	2. Tighten slab-head screw (63) in bracket hub and stud assembly (62). Position slab-head screw (63) so that it is in the proper slot on the tone arm shaft.
Does not cycle automatically on 33- and 45-rpm records.	1. Cork friction pad (60) missing from bracket hub and stud assembly (62).	1. Replace friction pad (60) with an adhesive.
Does not cycle automatically.	1. Trip lever (84A) on cam gear (84) binds.	1. Eliminate binding.
	2. Bent trip rod and weight assembly (61).	2. Straighten trip rod and weight assembly (61).
	3. Oil or grease on trip rod and weight assembly (61).	3. Remove any oil or grease from trip rod and weight assembly (61) with alcohol.

TROUBLE CHART (CON'T.)

Symptom	Cause	Remedy
Tone arm does not clear a one-inch stack of records.	1. Tone arm height incorrect.	1. Adjust tone arm height (see "Tone Arm Height Adjustment").
Tone arm sets down in 12-inch position only.	1. Loose or broken tension spring (35).	1. Replace or reconnect tension spring (35).
	2. Binding 12-inch feeler (34).	2. Eliminate binding.
	3. Semaphore (32) incorrectly adjusted.	3. Adjust semaphore (32). (See "Semaphore Adjustment").
Tone arm sets down beyond a 7-inch record.	1. Record size bracket assembly (82) loose on semaphore shaft or incorrectly adjusted.	1. Adjust semaphore (32). (See "Semaphore Adjustment").
Tone arm sets down in 10-inch position when 7-inch records are being played.	1. Semaphore (32) incorrectly adjusted.	1. Adjust semaphore (32). (See "Semaphore Adjustment").
	2. Tension spring (123) on plunger loose or defective.	2. Remount or replace tension spring (123).
Incorrect or erratic tone arm setdown.	1. Tone arm setdown incorrect.	1. Adjust tone arm (1). (See "Tone Arm Setdown Adjustment").
	2. Semaphore (32) adjustment incorrect.	2. Adjust semaphore (32). (See "Semaphore Adjustment").
	3. Semaphore (32) defective or warped.	3. Check semaphore (32) for defects; replace if necessary.
	4. Record size bracket assembly (82) loose on semaphore shaft.	4. See "Semaphore Adjustment" for proper position of record size bracket assembly (82).
Record strikes tone arm as it moves toward tone arm rest (24).	1. Excessive spindle (44) pressure.	1. For proper pressure, see "Spindle Adjustment".
Motor does not shut off in the Off position.	1. Switch arm disengaged from tab (C).	1. Bend the two fingers on the switch arm until they straddle tab (C).
	2. Defective on-off switch.	2. Check on-off switch with an ohmmeter. If switch is shorted, repair or replace it. Also check the capacitor across the switch (in some models). If capacitor is shorted, replace it.
Tone arm sets down on baseplate instead of on tone arm rest (24).	1. Loose bracket hub and stud assembly (62).	1. Tighten slab-head set screw (63) in bracket hub and stud assembly (62).
	2. Incorrect bend in tone arm (1).	2. Replace tone arm (1) shell.
Needle does not engage record lead-in groove.	1. Tone arm setdown incorrectly adjusted.	1. Adjust tone arm setdown (see "Tone Arm Setdown Adjustment").

Ref. No.	Part No.	Description
1	42P465-8NS	Tone Arm, Models T168-5, -9, -13, -17, -21 and T172-1, -5 and T168-5 and 1941, 1942
	42P465-6T	Tone Arm, Model E168-1
	42P465-8T	Tone Arm, Models E168-5, -9, -13 and E172-1 and -5
	42P365-LH	Tone Arm, Model 170-2
	42P465-5NS	Tone Arm, Models 170-4, -4A -7 and -8
	42P465-5T	Tone Arm, Models 170-3, -5, -5A, -6, -9 and -10
	42P465-9T	Tone Arm, Model 171-2
	42P565-INS	Tone Arm, Models 1931-1 and -21
2	11X1505	Tone Arm Latch Plate
	45P2088	Tone Arm Latch Plate Model 1931
3	26P1468	Screw, #4-40 x 1/4"H. H. S. T.
4	21X577	Tone Arm Hinge Assembly (Includes Ref. No.'s 5, 6, 9, and 10)
5	25P639	Insert
6	25P558	Grommet
	25P256	Grommet Model 1931-27
7	25P188	Washer
8	25P257	Washer, Models 168, 172, 170, and 171
9	26P259	Screw, #6-32 x 5/16"
10	46P534	Anti-Jam Spring
	46P554	Anti-Jam Spring, Model 1931-27
11	21X335	Tone Arm Counterbalance Assembly
12	26P1247	Hex Nut, #6-32
13	26P1267	Pivot Screw, #6-32 x 9/32"
14	21X572	Tone Arm Base Assembly
15	21P1553-1	Screw, 4-40 x 3/16", H. H. Machine
16	49P313NS	Housing For Models T168-5, -9, -13, -17, -21 and T172-1, and -5 and 170-4, -4A, -7, -8, 9 and -10
	49P313-T	Housing, Models E168-1, -5, -9, -13, and E172-1 and -5, and 170-2, -3, -5, 5A, -6, and 171-2
	11X1946-NS	Housing, Models 1931, 1941 and 1942
17	26P1561	Height Adjustment Screw #6-32 x 3/8"
18	49X318-2	Speed Control Knob Models 1931, 1941, and 1942
	49P318-1	Speed Control Knob Models 170-2, -5 and -5A and E168-1, -5, -9 and -13
	49P318-2	Speed Control Knob Models T168-5, -9, -13, -17-21, and E172-1, -5 and T172-1 and -5, and 170-3, -4, -4A, -6, -7, -8, -9, -10, and 171-2
19	78P768-3	Speed Indicator Disc, Models 1931, 1941, and 1942
	78P784-1	Speed Indicator Disc, Models 170-7 and -8
	78P768-2	Speed Indicator Disc, Models 170-3, -6, -9, -10 and 171-2
	78P768-4	Speed Indicator Disc, Models 170-2, -5, and -5A
	78P768-6	Speed Indicator Disc, Models 170-4, and -4A
	78P768-1	Speed Indicator Disc, Models E168-1, -5, -9 and -13
	78P768-3	Speed Indicator Disc, Models T168-5, -9, -13, -17, -21, and T172-1 and -5
	78P768-5	Speed Indicator Disc, Models E172-1 and -5
20	45P2602	Spring Insert
21	25P728	Felt Washer
22	25P574	"C" Washer
23	11X2009-1	Reject Link and Knob Ass'y. Models E168-1, -5, -9, and -13 and 170-2, -3, -5, -5A, -6, -9, -10 and 172-2
	11X2009-2	Reject Link and Knob Ass'y. Models T168-5, -9, -13, -17 and -21 and 170-4, -4A, -7 and -8
	11X2009-3	Reject Link and Knob Ass'y. Models E172-1 and -5
	11X2009-4	Reject Link and Knob Ass'y. Models T172-1 and -5
24	49P321-NS	Tone Arm Rest, Models 1941 and 1942 and T168-5, -9, -13, -17, and -21 and 170-4, -4A, -7 and -8
	49P321-T	Tone Arm Rest, Models E168-1, -5, -9, and -13 and 170-2, -3, -5, -5A, -6, -9, -10, and 171-2
	49P340-NS	Tone Arm Rest, Models T172-1, and -5
	49P340-T	Tone Arm Rest, Models E172-1 and -5
25	49P319-1	Knob Escutcheon, Models 1931, 1941, 1942 and 168
	49P341-1	Mainplate Escutcheon, Model 172
	78P758-5	Knob Escutcheon, Models 170-2, 170-5, and 170-5A
	78P758-6	Knob Escutcheon, Models 170-3, -6, -9, -10 and 171-2
	78P758-7	Knob Escutcheon, Models 170-4, -4A, -7 and -8
26	45X2631-AV	Mainplate and Cup Assembly, Models E168-1, -5, -9, and -13
	45X2631-GN	Mainplate and Cup Assembly, Models T168-5, -9, -13, -17, and -21
	45X2631-IT	Mainplate and Cup Assembly, Models E172-1, and -5
	45X2631-2GN	Mainplate and Cup Assembly, Models 1941, and 1942
	45X2631-3GN	Mainplate and Cup Assembly, Model 1931
	45X2630-1AS	Mainplate and Cup Assembly, Model 170-5 and -5A
	45X2630-GD	Mainplate and Cup Assembly, Models 170-3, -6, -9, -10, and 171-2
	45X2630-GT	Mainplate and Cup Assembly, Models 170-7, and -8
	45X2630-1GT	Mainplate and Cup Assembly, Models 170-4, and -4A
	45X2630-T	Mainplate and Cup Assembly, Model 170-2

Ref. No.	Part No.	Description
27	25P639	Insert
28	11X2015-NS	Overarm and Shaft Assembly, Models T168-5, -9, -13, -17, -21 and 1931, 1941 and 1942
	11X2015-1NS	Overarm and Shaft Assembly, Models T172-1, and -5
	11X2015-T	Overarm and Shaft Assembly, Models E168-1, -5, -9, and -13
	11X2015-1T	Overarm and Shaft Assembly, Models E172-1, and -5
	11X2015-LH	Overarm and Shaft Assembly, Model 170-2
	11X2015-NS	Overarm and Shaft Assembly, Models 170-4, -4A, -7, and -8
	11X2015-T	Overarm and Shaft Assembly, Models 170-3, -5, -5A, -6, -9, -10, and 171-2
29	25P712	Felt Washer
30	50P348	Retainer Clip
31	24P124-1	Turntable Mat, Models E168-1, 170-2, -3, -5, -5A, -6, -9, -10 and 171-2
	24P160-1	Turntable Mat, Models T168-5, -9, -13, -17, -21, and T172-1, and -5 and 1931, 1941 and 1942
	24P160-2	Turntable Mat, Models E168-5, -9, -13 and 172-1 and -5
	24P124-3	Turntable Mat, Models 170-4, -4A, and -8
32	49X323-1NS	Semaphore and Shaft Ass'y. Models T168-5, -9, -13, -17, -21, and T172-1, and T172-5, and 1931, 1941, and 1942
	49X323-1T	Semaphore and Shaft Ass'y., Models E172-1, and -5
	49X323-2T	Semaphore and Shaft Ass'y., Models E168-1, -5, -9, and 13
	49X323-NS	Semaphore and Shaft Ass'y., Models 170-4, -4A, -7, and -8
	49X323-T	Semaphore and Shaft Ass'y., Models 170-2, -3, -5, -5A, -6, -9, -10, and 171-2
33	11X1990-1NS	Turntable Assembly, Models T168-5, -9, -13, -17, -21, and T172-1 and -5, and 1931, 1941, and 1942
	11X1990-T	Turntable Assembly, Models E168-1, and 170-3, -5, -5A, -6, -9, -10, and 171-2
	11X1990-1T	Turntable Assembly, Models E168-5, -9, -13, and E172-1 And -5
	11X1990-GL	Turntable Assembly, Models 170-4, -4A, -7, and -8
	11X1990-LH	Turntable Assembly, Model 170-2
34	45P2617	12" Feeler
35	46P533	Tension Spring
36	26P1058	Screw, #6-32 x 3/16"
37	45P2594	Sensitivity Adjustment Tab
38	45P2682	Idler Retract Wire
39	26P1045-3	Changer Mounting Screw, Models 1942 and 168-1, -5, -9, and -13 and 170-2, -5, and -5A
	26P1045-1	Changer Mounting Screw, Models 170-3, -4, -4A, -6, -8, -9, -10, and 171-2
	26P1045-8	Changer Mounting Screw, Models 168-17 and -21
	26P1045-11	Changer Mounting Screw, Models 172-1 and -5
40	26P1578-3	Screw, #8-32 x 3/8" H.H.S.T. Machine
41	25P715	Bearing Race Washer
	25P624	Bearing Race Washer, Models 1931, 1941 and 1942
42	11X058	Bearing Retainer Assembly
43	25P716	Bearing Race Washer
44	11X2028	Spindle Assembly
45		Retainer
46A	46P549-4	Cushion Spring, Models 168-5, -9, and -13, and 1931, 1941, and 1942
	46P307	Cushion Spring, Models 170 and 171, and E168-1
	46P548	Cushion Spring, Models 168-17, -21, and 172-1, and -5
46B	46P49-2	Cushion Spring, Models 1931, 1941, and 1942 and 168-5, -9, and -13
	46P307	Cushion Spring, Models 170 and 171
46C	46P539	Cushion Spring, Models 170 and 171
	46P545	Cushion Spring, Model 168-1
	46P549-3	Cushion Spring, Models 168-5, -9, and -13 and 1931, 1941, and 1942
	46P486	Cushion Spring, Models 168-17, -21, and 172-1, and -5
46D	46P549-1	Cushion Spring, Models 1931, 1941, and 1942 and 168-5, -9, and -13
	46P307	Cushion Spring, Model 168-1
	46P486	Cushion Spring, Models 168-17, -21, and 172-1, and -5
47		Tone Arm Rest Post Retainer
48	11X2008	Speed Selector Bracket
49	11X2002	Extension Arm and Link Ass'y.
50	45P2597	Motor Cam
51	25P596	"C" Washer
52	46P544	Tension Spring
53	11X2003	Reject Strap and Trip Spring Assembly (includes 56 and 57)
54	25P596	"C" Washer
55	46P543	Tension Spring
56	45P2623	Retract Wire Adjustment Tab
57	26P1493	Screw, #6-32 x 5/16"H.H.S.T.
58	45P2613	Friction Spring
59	25P717	Washer
60	28P024	Friction Pad
61	11X1992	Trip Rod and Weight Assembly
62	11X2004	Bracket Hub and Stud Ass'y.
63	26P1555	Screw, #8-32 x 3/8", Slab Head Cone Point
64	25P596	"E" Retainer Ring
65	45P2600	Switch Shut-Off Lever
66	24P165	Reset Pad
67	11X2026-1	Mounting Plate Assembly, Models 168, 170, 171, and 172
	11X2026-2	Mounting Plate Assembly, Models 1931, 1941, and 1942
68	26P1552-1	Screw, #8 x 1/4"H.H. Sheet Metal

MECHANICAL PARTS LIST (CON'T.)

Ref. No.	Part No.	Description
69	26P1555	Screw, #8-32 x 3/8" S.H. Cup Point
70	32X039	Switch Cover Assembly
71	46P528	Tension Spring
72	11X2012	Overarm Guide and Hub Ass'y.
73	26P1451	Screw, #8-32 x 5/16", S.H. Cup Point
74	25P714	Washer
75	50P416	Speed Nut
76	46P531	Tension Spring
77	45P2728	Cam Lever Link (Late Production)
	45P2593	Cam Lever Link (Early Production)
78	46P546	Conical Compression Spring
79	45P2685	Flag Trap Disc
80	50P424	Retainer Ring
81	26P1450	Screw, #8-32 x 5/16", S.H. Cup Point
82	11X1993	Record Size Bracket Assembly
83	25P574	"C" Washer
84	11X2010	Cam Gear Assembly
85	41P1782	Cam Lever Stud, Used in Models 1931, 1941, 1942
	27P398	Cam Lever Shoulder Pivot, Used in Models 168, 170, 171, and 172
86	25P713	Spring Washer
87	26P1253	Screw, #4-40 x 3/16" H.H. Machine
88	45P2591	Latch Retainer
89	45P2575	Cam Lever Latch
90	11X2016	Cam Lever and Arm Assembly
91	46P529	Tension Spring
92	11X2019	Cam Plate Assembly
93	11X2026-2	Mounting Plate Assembly, Models 1931, 1941, and 1942
	11X2026-1	Mounting Plate Assembly, Models 168, 170, 171, and 172
94	26P1523	Stop Nut, #2-56
95	45P2589	Stop Plate
96	46P547	Compression Spring
97	50P034	Spring Clip, Models 168, 170, 171, and 172
	50P125	Spring Clip, Models 1931, 1941, and 1942
98	50P125	Spring Clip, Models 1931, 1941, and 1942
	25P596	"C" Washer, Models 168, 170, 171, and 172
99	46P532	Compression Spring

Ref. No.	Part No.	Description
100	49P325	Connecting Link Adjustment Nut
101	48P101	Connecting Link
102	49P320	Connecting Link Bearing
103	11X2007	Idler Link Assembly
104	25P535	"C" Washer
105	25P394	Washer
106	11X2014	Motor Mounting Bracket Ass'y.
	11X705	Motor Mounting Bracket Assembly, Models 1931, 1941-21, 1942-21
107	26P1552-1	Screw, #8 x 1/4" H.H. Sheet Metal
108	17X792-1	Motor Sub-Assembly, Used in Models 170, 171, and 168-1, -5, and -9
	17X792-5	Motor Sub-Assembly, Used in Models 168-13, -17, -21, and 172-1, and -5 and 1941-1 and 1942-1
	17X794-3	Motor Sub-Assembly, Used in Model 1931-1
	17X816	Motor Sub-Assembly, Used in Models 1931-21, -27, 1941-21, and 1942-21
109	50P252	Changer Mounting Speed Clip
110	25P447	"C" Washer
111	11X1607	Idler Wheel
	11X1931	Idler Wheel, Used in Models 1931, 1941-21, and 1942-21
112	25P596	"C" Washer
113	25P706	Fibre Washer (2 required)
114	25P635	Grommet
	25P679	Grommet, Models 1931, 1941-21, and 1942-21
115	25P352	Washer
116	26P1381	Hex Nut, #5/16"-24
117	26P1575	Spindle Adjustment Screw, #8-32 x 3/4"Machine, Models 1931, 1941, and 1942
	26P1554	Spindle Adjustment Screw, #8-32-32 x 5/8" S.H. Oval Point
118	26P052	Hex Nut, #8-32
119	45P2682	Idler Retract Wire
120		Spindle Lever
121		Spindle Roller
122	45P2586	Plunger
123	46P530	Tension Spring
124		Lockout Pawl

PARTS LIST FOR 45 RPM SPINDLE

Ref. No.	Part No.	Description
125	78P759-2	Spindle Insert, Black
	78P759-1	Spindle Insert, Ivory
126	26P1556-3	Screw, #4-24 x 1 5/8"
127	49P327-1	Upper Housing, Black
	49P327-2	Upper Housing, Ivory
128	45P2626	Loop Spring
129	46P538	Torsion Spring
130	46P398	Torsion Spring
131	45P2625	Record Knife Actuator
132	45P2627	Record Knife, Right Hand
133	45P2628	Record Knife, Left Hand

Ref. No.	Part No.	Description
134	45P2629	Mounting Plate
135	11X2032-1	Record Shelf and Pin Assembly, Black
	11X2032-2	Record Shelf and Pin Assembly, Ivory
136	27P284	Groove Pin
137	49P329-1	Lower Housing, Black
	49P329-2	Lower Housing, Ivory
138	49P328-1	Ferrule, Black
	49P338-2	Ferrule, Ivory
139	50P365	Retaining Ring

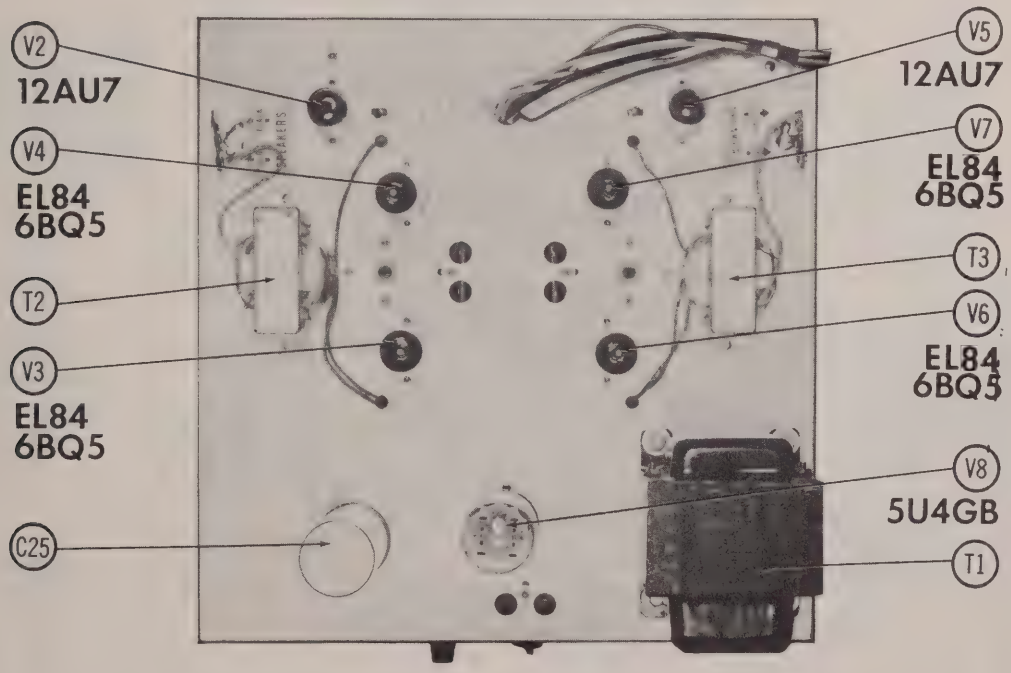
PHOTOFACT* Folder

ZENITH MODELS SF2510, L, R, SF2550, E, R (Ch. 1B30, 7B30)

ZENITH MODELS SF2510, L, R, SF2550, E, R (Ch. 1B30, 7B30)

TRADE NAME	Zenith Models SF2510, SF2510L, SF2510R, SF2550, SF2550E, SF2550R (Preamplifier Chassis 1B30, Amplifier Chassis 7B30)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated 8 Tube Stereo Amplifier With 4 Speed Automatic Record Changer
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 130 Watts, 1.2 Amp. @ 117 Volts AC (Less Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER S-14090 OR S-14093 - SEE SIMILAR ZENITH S-14086 - PHOTOFACT SET 402 FOLDER 15



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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PRE-AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Left Channel AF Amplifier-Right Channel AF Amp.	12AX7	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	350	22-2740	PRS350V10	BR1045	TC62	TD-10-450	TVA-1604	
C2	10	25	22-3076	PRS25V10	BBR10-25	TC22	TD-10-25	TVA-1204	
C3	10	25	22-3076	PRS25V10	BBR10-25	TC22	TD-10-25	TVA-1204	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	.0022	200		22-2837	P288N-0022	D6-222	CUB6D22	GEM-6222	6TM-D22	
C5	220		10%	22-2321	NPO-SI 220	TCZ-220	L10T22	JL-322	5TCC-T22S 10%*	
C6	220		10%	22-2321	NPO-SI 220	TCZ-220	L10T22	JL-322	5TCC-T22S 10%*	
C7	39		10%	22-3042	NPO-SI 39	TCZ-39	CTA6Q39C	CNO-439	5TCC-Q39S 10%*	
C8	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C9	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C10	10000	1000		22-3	DAC-27	DD16-103	CUB10S1	B-110	10HKB-S1	
C11	4700	1000	10%	22-14				JL-247	10HKB-D47	
C12	1000	1000	10%	22-17				JL-210	10HKB-D1	
C13	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C14	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C15	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C16	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C17	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C18	39		10%	22-3042	NPO-SI 39	TCZ-39	CTA6Q39C	CNO-439	5TCC-Q39S 10%*	
C19	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C20	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	
C21	10000	1000		22-3	DAC-27	DD16-103	CUB10S1	B-110	10HKB-S1	
C22	4700	1000	10%	22-14				JL-247	10HKB-D47	
C23	1000	1000	10%	22-17				JL-210	10HKB-D1	
C24	.0047	200	10%	22-2825			PM6D47	GTM-2247	6TM-D47	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	63-4373					Loudness, Left Channel, Taps @ 450K, 900K
B	2meg	½						Stereo Balance, Right Chan. Taps @ 450K, 900K
R2A	10K	½	63-4419	B-13		Q11-116	†	Presence, Left Channel
B	10K	½		SR-13		M11-116		Presence, Right Channel
R3A	500K	½	63-4418	B-60	AD47-500K-Z	Q13-133		Treble, Left Channel
B	500K	½		SR-60	Not Req.	M13-133	‡	Treble, Right Channel
C	Shaft			Not Req.	KSS-3	Not Req.		
R4A	1meg	½	63-4416	B-70	AD47-1meg-Z	Q13-137		Bass, Left Channel
B	1meg	½		SR-70	Not Req.	M13-137	††	Bass, Right Channel
C	Shaft			Not Req.	KSS-3	Not Req.		

† "STA-LOC" Equivalent: FA14L, RU14L, CS3500.
‡ "STA-LOC" Equivalent: FA55A, RU55A, CS3500.
†† "STA-LOC" Equivalent: FA16A, RU16A, CS3500.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R5	1.5meg		63-1918	
R6	220K		63-1883	
R7	680K		63-1904	
R8	1meg		63-1912	
R9	330K		63-1890	
R10	68K		63-1862	
R11	100K		63-1870	
R12	1000Ω		63-1786	
R13	330K		63-1890	
R14	100K		63-1869	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R15	470Ω		63-1771	
R16	470Ω		63-1771	
R17	330K		63-1890	
R18	68K		63-1862	
R19	100K		63-1870	
R20	330K		63-1890	
R21	100K		63-1869	
R22	10K		63-1828	
R23	1000Ω		63-1786	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	142-93 ①	13-TB *				① Includes needles ② Includes needles and mounting mechanism

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	ZENITH PART No.	JENSEN PART No.	WALCO PART No.	
M2	(78RPM)	† E-98 or ♦ E-98D	† W-102S	† Jewel ♦ Diamond
	(LP)	† E-98X or ♦ E-98XD	† W-101STS or ♦ W-101STD	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Switch	85-607	Record Compensator (6 Position, Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V2	Left Channel AF Amp. - Left Channel Phase Inv.	12AU7	
V3	Left Channel Output	EL84/6BQ5	
V4	Left Channel Output	EL84/6BQ5	

ITEM No.	USE	TYPE	NOTES
V5	Right Channel AF Amp. - Right Channel Phase Inv.	12AU7	
V6	Right Channel Output	EL84/6BQ5	
V7	Right Channel Output	EL84/6BQ5	
V8	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C25A	■80	450	22-3106	AFH4-18-45	D0177	FP378	TMD-58	TVLS-3793.2*	
B	▲40	450				TC75	TD-40-450		
C	▲40	450							
C26	3	30NP	22-2945	NP-PRS50V4	BBR5-50 †	TCN503	TD-5-50 †	TVAS-1215 *	
					BBR5-50 †		TD-5-50 †		
C27	3	30NP	22-2945	NP-PRS50V4	BBR5-50 †	TCN503	TD-5-50 †	TVAS-1215 *	
					BBR5-50 †		TD-5-50 †		

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Connect negative leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

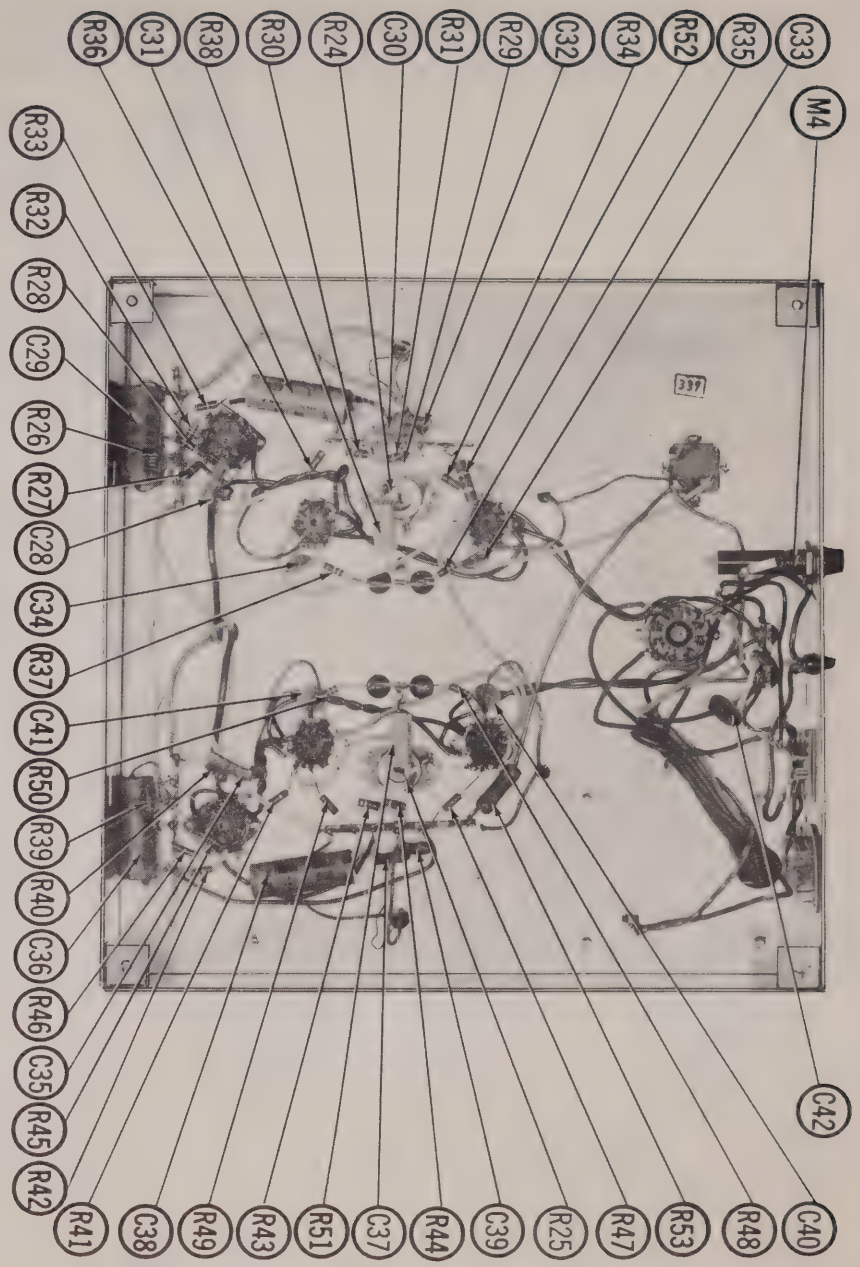
ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C28	220		10%	22-2321	NPO-SI 220	D6-221	L10T22	JL-322	5TCC-Q22S 10%*	
C29	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C30	330		10%	22-2309	DI-330	D6-331	L10T33	JL-333	5GA-T33S 10%*	
C31	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C32	330		10%	22-2309	DI-330	D6-331	L10T33	JL-333	5GA-T33S 10%*	
C33	47		N75 10%	22-2376						
C34	47		N75 10%	22-2376						
C35	220		10%	22-2321	NPO-SI 220	D6-221	L10T22	JL-322	5TCC-Q22S 10%*	
C36	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C37	330		10%	22-2309	DI-330	D6-331	L10T33	JL-333	5GA-T33S 10%*	
C38	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C39	330		10%	22-2309	DI-330	D6-331	L10T33	JL-333	5GA-T33S 10%*	
C40	47		N75 10%	22-2376						
C41	47		N75 10%	22-2376						
C42	10000	1000		22-3		DD-103	BYA10S1	B-110	10HKB-S1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R24A	50Ω	1(WW)	63-4402	WN-500	A43-50	WPK50	C50P	Current Bal. Left Channel
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	
R25A	50Ω	1(WW)	63-4402	WN-500	A43-50	WPK50	C50P	Current Bal. Right Channel
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

AMP CHASSIS—BOTTOM VIEW



AMP PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R26	47K		63-1855	
R27	22K		63-1841	
R28	2200Ω		63-1799	
R29	100K		63-1869	
R30	150K		63-1876	
R31	150K		63-1876	
R32	47K		63-1855	
R33	2200Ω		63-1799	
R34	1000Ω		63-1786	
R35	330K		63-1891	
R36	1000Ω		63-1786	
R37	330K		63-1891	
R38	135Ω 5%	2	63-4397	
R39	47K		63-1855	

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R40	22K		63-1841	
R41	2200Ω		63-1799	
R42	100K		63-1869	
R43	150K		63-1876	
R44	150K		63-1876	
R45	47K		63-1855	
R46	2200Ω		63-1799	
R47	1000Ω		63-1786	
R48	330K		63-1891	
R49	1000Ω		63-1786	
R50	330K		63-1891	
R51	135Ω 5%	2	63-4397	
R52	2700Ω	1	63-1573	
R53	2000Ω	3	63-4417	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.2A	660VCT @ .170A	5V @ 3A	95-1641						
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT @ 3.9A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6800Ω CT	75Ω SEC.2 6-8Ω	95-1642							
T3	6800Ω CT	SEC.1 75Ω SEC.2 6-8Ω	95-1642							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	49-873 ①	12A4A ①	① Left Channel
SP2	5"	PM	3-4Ω	49-856 ①	5A15TZ4 ①	② Right Channel
SP3	12"	PM	6-8Ω	49-873 ②	12A4A ②	
SP4	5"	PM	3-4Ω	49-856 ②	5A15TZ4 ②	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M4	3AG	4A 250V	136-31	62-17 15-115 (CAP)	312004. (3AG 4A 250V)	342001	MTH4	HKP

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-2096	Volume, Models SF2550E, R
Knob	46-1997	Volume, Remote
Knob	46-2081	Control, 4 used
Knob	46-2098	Volume, Models SF2510, L, R
Cabinet	14-2498	Model SF2550
Cabinet	14-2498E	Model SF2550E
Cabinet	14-2498R	Model SF2550R
Cabinet	14-2521	Model SF2510
Cabinet	14-2521L	Model SF2510L
Cabinet	14-2521R	Model SF2510R
Legs	96-194	4 used, Model SF2550
Legs	96-193	4 used, Model SF2550R
Legs	96-195	4 used, Model SF2550E
Legs	96-171	4 used, Model SF2510
Legs	96-170	4 used, Model SF2510L
Legs	96-172	4 used, Model SF2510R

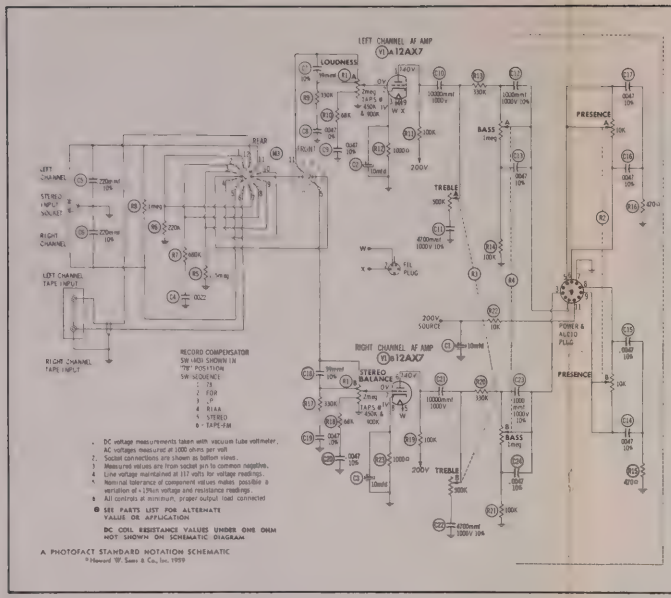
WIRING DATA

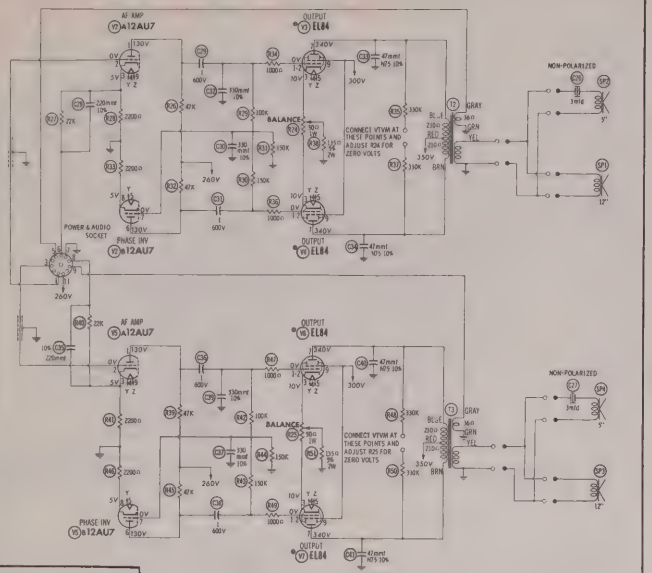
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

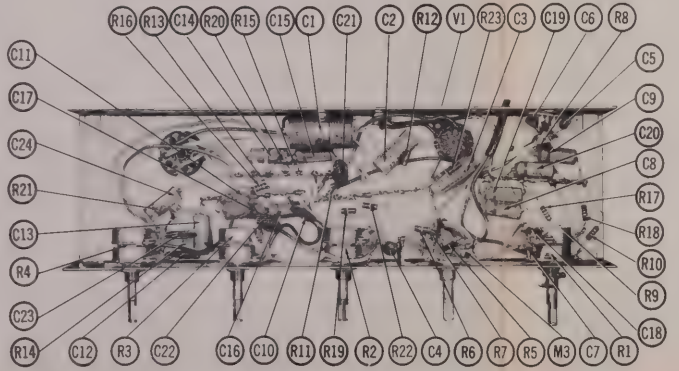
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

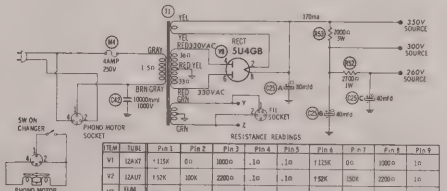
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)


LEFT CHANNEL AF AMP
V1 = 12AX7
LOUDNESS
PRESENCE
BASS
TREBLE
RIGHT CHANNEL AF AMP
V2 = 12AX7
STEREO BALANCE
POWER & AUDIO PLUG
200V SOURCE
LEFT CHANNEL
STEREO INPUT
RIGHT CHANNEL
RIGHT CHANNEL TAPE INPUT
LEFT CHANNEL TAPE INPUT
RECORD COMPENSATOR
SW I-MDI SHOWN IN "78" POSITION
SW SEQUENCE
1 - 78
2 - FDR
3 - LP
4 - RIAA
5 - STEREO
6 - TAPE-FM
1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±5% in voltage and resistance readings.
6. All controls at minimum, proper output load connected
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1959





PRE-AMP CHASSIS - BOTTOM VIEW



TRM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†115K	0Ω	1000Ω	.1Ω	.1Ω	†115K	0Ω	1000Ω	1Ω
V2	12AU7	†52K	100K	2200Ω	.1Ω	.1Ω	†52K	150K	2200Ω	1Ω
V3	EL84 &BOS	250K	250K	160Ω	.1Ω	.1Ω	NC	†230Ω	NC	†2000Ω
V4	EL84 &BOS	300K	300K	160Ω	.1Ω	.1Ω	NC	†230Ω	NC	†2000Ω
V5	12AU7	†52K	100K	2200Ω	.1Ω	.1Ω	†52K	150K	2200Ω	1Ω
V6	EL84 &BOS	250K	250K	160Ω	.1Ω	.1Ω	NC	†230Ω	NC	†2000Ω
V7	EL84 &BOS	300K	300K	160Ω	1Ω	.1Ω	NC	†230Ω	NC	†2000Ω
V8	5U4GB	NC	1	NC	360	NC	330	NC	1	

1 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V8.
NC NO CONNECTION

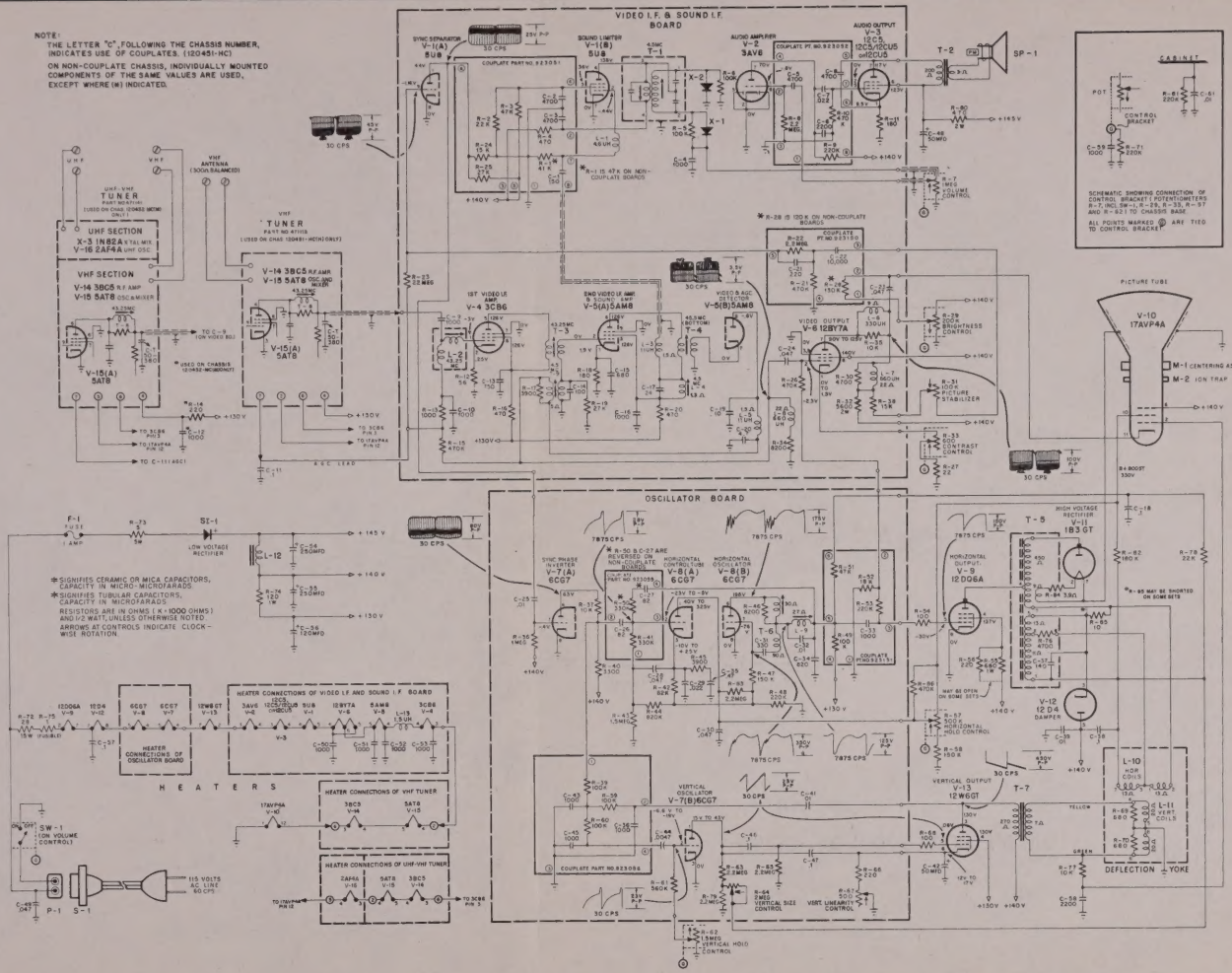
ZENITH MODELS SF2510, L, R, SF2550, E, R (Ch. 1B30, 7B30)

EMERSON MODELS 1500,

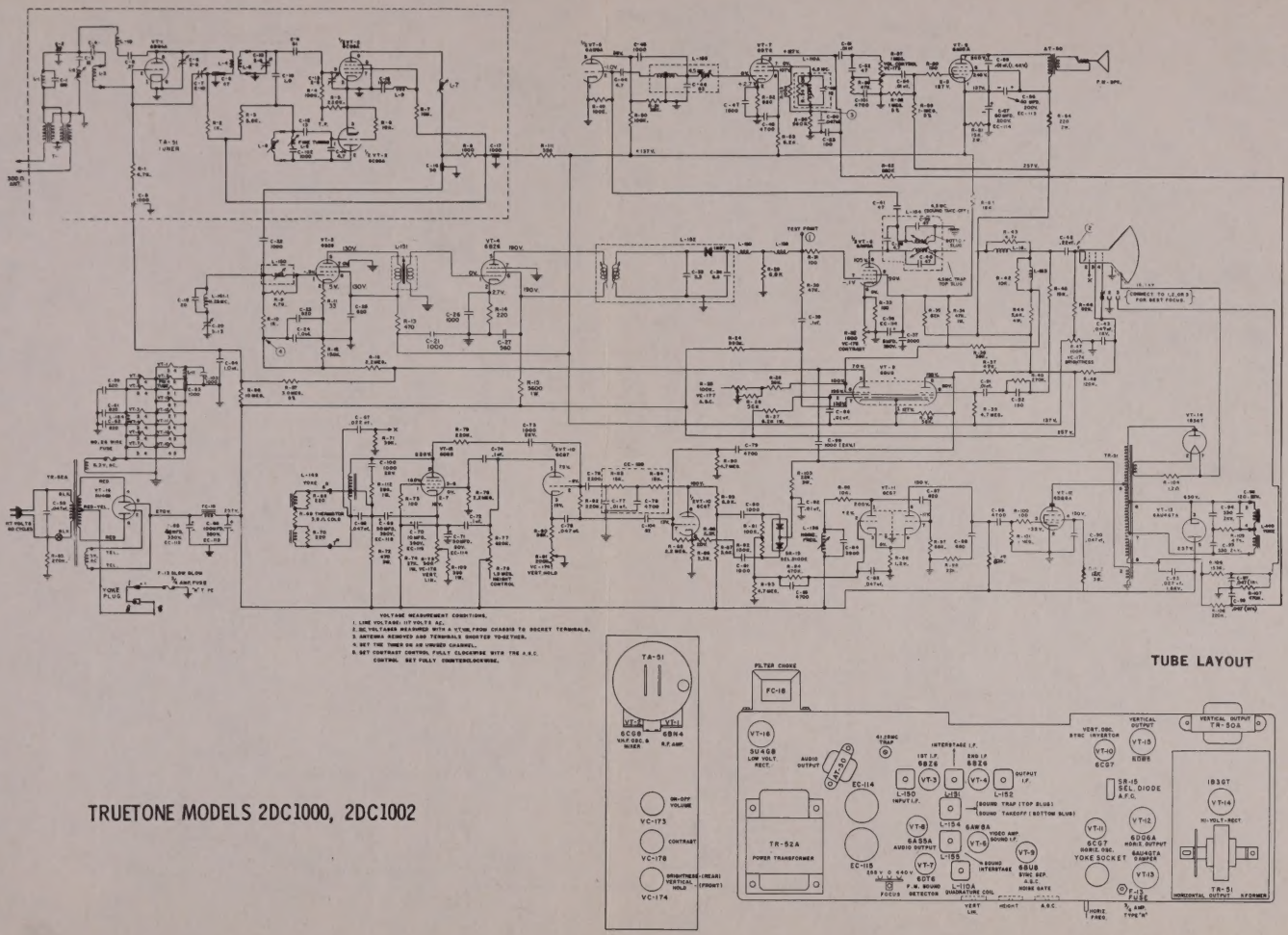
1502, 1503, 1504, 1505,

1506(CH. 120451H, HC,

120452M, MC)


VIDEO I.F. & SOUND I.F. BOARD
OSCILLATOR BOARD
TUNER
UHF SECTION
VHF SECTION
HEATERS
DEFLECTION YOKE
PICTURE TUBE
CABINET
NOTE:
THE LETTER "C", FOLLOWING THE CHASSIS NUMBER, INDICATES USE OF COUPLATES. (120451-HC)
ON NON-COUPLATE CHASSIS, INDIVIDUALLY MOUNTED COMPONENTS OF THE SAME VALUES ARE USED, EXCEPT WHERE (M) INDICATED.
*SIGNIFIES CERAMIC OR MICA CAPACITORS, CAPACITY IN MICRO-MICROFARADS.
*SIGNIFIES TUBULAR CAPACITORS, CAPACITY IN MICROFARADS.
RESISTORS ARE IN OHMS (K=1000 OHMS) AND 1/2 WATT, UNLESS OTHERWISE NOTED.
ARROWS AT CONTROLS INDICATE CLOCK-WISE ROTATION.

Schematic Diagram Courtesy of Emerson Radio & Phonograph Corp.



TRUETONE MODELS 2DC1000, 2DC1002

TUBE LAYOUT

Schematic Diagram Courtesy of Western Auto Supply Co.

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